

Case Studies in Finance & Accounting

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Case Studies in Finance and Accounting

Preface

This book contains seventeen case studies on various topics in Finance & Accounting, published in International Research Journal of Applied Finance (IRJAF) during the year 2012. Faculty members can use these cases for class room discussions. However, we request you to send an acknowledgement mail to case authors as a curtsey. Teaching Notes are available to faculty members on request. Please send your requests to editor@irjaf.com. The copy rights of all these cases are with Kaizen Publications, Hyderabad, India.

The cases in this book touch several dimension in Finance and Accounting like, **International Finance** (The Case of the Drifting Exchange Rate), **Financial Processes and Procedures** (Integrating a New Business into the Financial Planning Process at Unilever), **Corporate Valuation** (Manufacturas Lizard), **Corporate Valuation** (BCE Inc. Privatization: Fact or Fiction?), **Financial Ethics** (Pacific Health Care: What should the Controller do?), **Complex Projects - Network Analysis** (The Dolphin Bay Development: Optimum Strategy using Network Analysis), **Internal Audit - Code of Ethics** (Mercy Hospital: A Case Analysis), **Project Valuation and Evaluation** (Privatization: Chicago Parking Meters, LLC), **Financial and Social Responsibility** (Blue Mountain State University – A Case Study - Selecting Socially Responsible Contractors for a New Building), **Preparation of Financial Statements** (Omega Tech Case: Putting it all together), **Inventory Valuation** (Antiock Hardware: An Inventory Case Study), **Asset Misappropriations** (Big Training Corporation), **Cash Flows and Ethical Dilemmas** (Sunset Medical: A Statement of Cash Flow Case), **Audit Tasks - Ethical Dimensions** (Brad's Time for a Decision), **Business Analysis** (Micro-District Coal Heating Case Study), **Environmental Management Accounting** (Should you buy an energy efficient refrigerator? An Environmental Accounting Case), and **Organizing a Case Competition** (A Model for Running an Undergraduate Business-focused Case Competition).

The Editor of the Journal invites papers / cases with theoretical research/conceptual work or applied research/applications on topics related to research, practice, and teaching in all subject areas of Finance, Accounting, Investments, Money, Banking and Economics. The original research papers, articles, and cases (not currently under review or published in other publications) will be considered for publication in International Research Journal of Applied Finance.

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The Case of the Drifting Exchange Rate

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Randy Bozarth loosened his grip on the tiller of his sail boat and let the bow turn slowly into the breeze. Soon the craft nosed into the wind and was virtually dead in the water giving Randy time to think about what had been troubling him for days now. If only he had taken an international finance course rather than wasting his time on “fun” electives when in college. But that was in the past and if he had learned anything so far in life it was you cannot change the past.

Randy had relocated from the Chesapeake Bay area to the west coast of Mexico a couple of years earlier to be able to sail more and also to experience a different culture. So far he was quite happy with his decision although life ‘south of the border’ did present some unique challenges. Most of the challenges came from his housing arrangements. Upon moving south he decided he would forgo living in a single family dwelling and instead opt for a condominium. There were several condo complexes to choose from and most were owned predominately by Canadians, U.S. citizens, and Europeans. Randy chose Bahia Mar Condominiums as his home and in general was very satisfied with his choice.

Given Randy’s educational background (B.S. in accounting) and years spent as a hospital controller it was no surprise that he was called upon by his neighbors to assist in the governance of the homeowners association (HOA). With some reluctance he had allowed himself to be elected treasurer of the Bahia Mar HOA’s Board of Directors last year. This means that he is obligated to review the quarterly financial statements prepared by the management of the HOA. Additionally he is responsible for presenting the proposed budget for the upcoming year to the annual meeting of all 150 condo owners. It is the budget that is troubling him.

The HOA is responsible for building and grounds maintenance, security, maid service (if desired), as well as general administration of the HOA which includes paying taxes, utilities, billing owners, etc. Virtually all costs incurred are denominated in pesos. The current year’s budgeted expenditures are 5,250,000 pesos. Approximately two-thirds of the budget is comprised of salaries for various HOA employees.

The budgeting process is largely driven by the expenditures requested by management. Once those have been justified and agreed upon by the Board of Directors of the HOA, management converts the budget into U.S. dollars. The budgeted expenditures amount is then divided by 150, the number of condominiums, to determine the annual condominium fees. The resulting annual fee is then divided by four as homeowner fees are paid quarterly on the first day of each quarter. Since most condo owners’ primary residences are in the U.S. it was decided that condo fees would be denominated in U.S. dollars rather than the local currency.

During the last few years management used an exchange rate of 10.5 pesos to the U.S. dollar to convert the peso denominated budget into dollars. Actual exchange rates fluctuated between 9.9 and 13.9 pesos per U.S. dollar during that period. The manager of the HOA is insisting on utilizing the same conversion factor as in the past years. His arguments range from “consistency” to “no one can predict the future”. Randy is uncomfortable with this approach. He takes his fiduciary responsibilities seriously and while on his watch as treasurer he wants the budgeting process accomplished in a professional manner.

As the budgeting process moves forward Randy knows he must decide how he wants the currency translation to be handled. He will also need to provide a coherent argument for his position and draft a memo for the HOA’s Board and manager. As Randy contemplates these exchange rate issues he notices a squall building rapidly a few miles to the west and moving his way. Apparently it’s time to make some decisions both financial and navigational.

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Appendix A

Depending on the extent of guidance the faculty member desires to provide to students, the following information regarding the current situation (as of Sept. 20X0) may be provided:

The expected interest rate in the US for 20X1 is approximately 0.25%

The expected interest rate in Mexico for 20X1 is approximately 4.50%

The current spot rate is 13.03 pesos/US\$.

A chart of the forward prices offered by a local bank is:

Date	Futures Price: \$/peso
Sept. 20X0	0.076925
Oct. 20X0	0.076400
Nov. 20X0	0.076100
Dec. 20X0	0.076275
Jan. 20X1	0.075775
Feb. 20X1	0.075475
Mar. 20X1	0.075125
Apr. 20X1	0.074975
May 20X1	0.074625
June 20X1	0.074400
July 20X1	0.074225
Aug. 20X1	0.074025
Sept. 20X1	0.073600
Dec. 20X1	0.072800

Questions

1. Assuming Mr. Bozarth would prefer to use external sources for an exchange rate, how would you suggest a rate for converting next year's budget from pesos to U.S. dollars be determined?
2. What alternate methods might Mr. Bozarth propose to the Board for dealing with foreign currency fluctuations?
3. How might Mr. Bozarth go about formulating an estimate of the exchange rate for the upcoming year rather than relying on external quotes?
4. What are the implications for the owners and the HOA manager of using the actual foreign exchange rate as compared to the 10.5 pesos per U.S. dollar rate used in prior years' budgeting process? How might this influence the owners' and managers preferences regarding the choice of exchange rate for next year's budget?

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Integrating a New Business into the Financial Planning Process at Unilever

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Abstract

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A new Controller in this case was recently hired by Unilever, a global 200 consumer products organization, to integrate a newly acquired business into Unilever's financial planning process. The newly acquired organization was a publically held company and had its own existing financial processes and procedures. Financial planning and reporting are major company activities and finance and accounting professionals are expected to "get it right." The purpose of this case study is to get students to think about the difficulties and challenges of revamping existing financial processes and procedures and alert them to areas where other financial professionals have encountered difficulties so they can benefit from their experience.

Keywords: Acquisitions, Capital Planning, Financial Planning, Inventory Valuation, Key Performance Measures

Background Information about Unilever

Unilever is well known around the world for its brands. On any given day, two billion people use Unilever products to look good, feel good and get more out of life. The company manufactures more than 400 brands focused on health and wellbeing. Many Unilever Brands, Dove, Axe, Ben and Jerry's, Lipton, are respected around the world and have become household names. The finance team developed a financial planning process to support their role in driving the success of these brands and others.

Unilever achieved a strong set of financial results in 2011. Underlying sales growth in 2011 was 6.5%, up from 3.5% in 2009, while 60% of Unilever categories are growing share despite challenging market conditions and a difficult economic climate. Its strategy is to focus on volume growth and strengthening the competitive position of the company's brands. Commenting on the company's performance, CEO Paul Polman said: "In 2011 we have made significant progress in the transformation of Unilever to a sustainable growth company despite difficult markets and an unusual number of significant external challenges. Our overall performance was driven by our growth in emerging markets and the Home Care and Personal Care categories. We invested heavily in our brands and exit the year with positive momentum. In Foods, whilst price increases have impacted volumes, we have grown in line with our markets and gained share in many of our key businesses."

In the past several years Unilever also enhanced their position in attractive, high-growth categories and purchased a portfolio of desirable brands through company acquisitions, joint ventures or Greenfield investments.

Case Context

You have been recently appointed to a start up project as a result of one of the activities mentioned above. You are facing demands on your time from your colleagues, boss and subordinates. At the same time you are receiving requests from headquarters and specialized support functions including Tax, Treasury, and Insurance. You constantly have to prioritize and there is danger that important tasks get delayed, or worse, never get done. Since Financial Planning and Reporting are one of the major activities you are responsible for you must quickly familiarize yourself with these Unilever financial processes. You are given nine areas of importance to focus your activities. The areas are:

1. Global Standard Chart of Accounts (SCOA)
2. Local Company Chart of Accounts
3. Financial Reporting Routine
4. Key Performance Measurements
5. Financial Budgeting System

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6. Capital Planning Process
7. Inventory Valuation and Cost of Goods Sold
8. Sarbanes Oxley Considerations

For each of the activities above you are given the objectives and the rules. You must identify the list of actions required and identify any potential obstacles or challenges you may face.

Global Standard Chart of Accounts (SCOA)

Objective

Unilever's global chart of accounts is a general ledger accounting system that allows for the accumulation globally and regionally of financial information. This global chart of accounts is a global mandate. Migration to this global chart of accounts is only recommended once you have a fully understanding of your current systems.

Rules

- You must implement and follow Unilever's Standards Chart of Accounts (SCOA)
- You must ensure implementation and accommodate local, legal, and fiscal requirements

Questions for Discussion

1. What reference documents should you obtain?
2. What are the key elements of your plan to implement the SCOA?
3. What are some obstacles or challenges you may face in trying to impose a global SCOA?
4. How do you identify if additional resources are needed?

1. Local Chart of Accounts – (LCOA)

Objective

In some countries, there are rules and regulations that dictate the local chart of accounts must be maintained. If the accounting professionals do not maintain the original set of accounting records, the company may be subject to criminal proceedings and/or significant fines or penalties. The accounting professional must become familiar with the local chart of accounts in order to properly prepare financial planning and reporting results. The accountant must also map the existing chart of accounts with Unilever's SCOA.

Rules

- Realize that, in some countries the LCOA must be maintained
- You must comply with both Unilever and local regulations and standards
- You must contact local auditors to determine local reporting laws and regulations and their impact

Questions for Discussion

1. How do you ensure accounting treatment is in accordance with Unilever standards and local regulations?
2. What is the best way to obtain an understanding of local standards or regulations and the adjustments required to convert the results to Unilever's reporting and accounting principles
3. How should you validate the existing trial balance?

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4. How do you identify the key personnel who are familiar with the political aspects of local regulations? Why is this individual crucial?
5. How do you know that the local statutory results reconcile to Unilever reported results?

2. Financial and Management Reporting Routine

Objective

One of the responsibilities of a financial manager is to report accurate financial results within predetermined deadlines while minimizing the disruption to the company and your staff.

Rules

- You must ensure all Management and Financial reports are submitted accurate and in a timely manner. This includes the Balance Sheet, Income Statement and Cash Flow Statement.
- You must ensure all reported financial results reconcile with local financial records

Questions for Discussion

1. What are the important issues in determining financial and management reporting requirements?
 2. How do you plan to ensure the deadlines are met?
 3. Who are the important groups to liaise with if there are any reporting issues?
- 3. Key Performance Measures**

Objective

For each of the businesses' critical processes identify a Key Performance Measure or Indicator. You must establish a reporting routine and definition for each Key Performance Measure.

Rules

- You must ensure that all critical processes are identified and that each has a key performance metric
- You must be able to identify how you will collect and report each key performance metric

Questions for Discussion

1. How do you identify what is an important business process?
2. How do you know the information you are reporting is helpful and who you should distribute the key performance measure to?

4. Financial Budgeting System

Objective

One of your responsibilities is to establish budgets that are an accurate but challenging goal for the business to achieve. You must ensure that the budgets are a reflection of managements' goals and that everyone on the organization feels that they have participated in the budget process and own the budget.

Rules

- Assumptions must be realistic
- Local management must participate in and own the budget

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Questions for Discussion

1. Identify several approaches to budgeting and recommend what are best practices in setting an initial budget
2. Identify best practice in establishing budget variances
3. What is the best way to ensure the budget is kept up to date?

5. Capital Planning Process

Objective

You must ensure that the capital planning process operates effectively and that capital purchases are properly included in the budget

Rules

- You must prepare an accurate capital expenditure and disposal proposal in order to execute a capital purchase
- You must ensure that capital purchases are properly reflected in the budget

Questions for Discussion

1. What are the key steps in ensuring you have the information to properly prepare a capital budget and who should be consulted?
2. What are some guidelines you should develop to determine if capital expenditures are reasonable?

6. Inventory Valuation and Cost of Goods Sold

Objective

You must establish an inventory valuation system and methodology for estimating cost of goods sold.

Rules

You will not be expected to develop a sophisticated method for estimating cost of goods sold but there must be a method for developing a cost of goods sold estimate as quickly as possible

Questions for Discussion

1. What are some ways to obtain an understanding of the existing inventory valuation methodology?
2. Why is an accurate an inventory valuation methodology critical?

7. Sarbanes Oxley Considerations

Objective

You must ensure there are adequate internal controls in the business and Sarbanes Oxley rules are established

Rules

The CEO must sign a confirmation that Sarbanes Oxley rules are followed and a system of internal controls is in place and controls are adequate

Questions for Discussion

1. What do you do if controls are not adequate?
2. How should you prioritize the issues to be addressed?

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Manufacturas Lizard

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In early June 2011, Julio Hernández, general manager of the company Plásticos Reales S.A. (PERESA), decided that he had better devote most of his time over the next few days to preparing for an upcoming meeting. This was due to take place on the 15th and would be an opportunity for PERESA to make a counter-offer for the purchase of Manufacturas Lizard S.A. by proposing a revised price for the company.

As the leader of PERESA's negotiating team, Mr Hernández was aware that buying Lizard potentially represented a unique opportunity for the company's growth strategy, and that the next meeting could be decisive to completing the transaction.

However, one of the vendor company's negotiating team had made a comment that summed up the state of the negotiations at that point:

"The negotiations we began four months ago are at a critical point right now. Everything went as smooth as silk, until we broached the minor detail of the price."

Some Background Information About Manufacturas Lizard, S.A.

Manufacturas Lizard S.A. (MALISA) was a family firm founded in 1975 by Mr José Castro and was devoted to the production of plaster and gypsum for use as building materials. Plaster and gypsum are composite materials mainly consisting of semihydrate and anhydrate calcium sulphate. They are obtained by processing chalk and have the property that after mixing with water they harden on contact with air as a result of crystallisation of the hydrated calcium sulphate.

MALISA had its headquarters in Sabanagrande, a town near Barranquilla, in the north of Colombia. Although ownership of the company was spread among various members of the Castro family, the control and management of the company was in the hands of Santiago Castro, the founder's son, who held the position of general manager.

The company sold its production through general (non-specialist) building materials distributors. In 2011, the gypsum and plaster sector for the construction industry in Colombia was highly fragmented, with very few exclusive distribution agreements.

MALISA's market was primarily centred on the north of Colombia, where it had a market share of close to 50%. The company did not have a nationwide presence. Its main competitor was another local producer, Materiales de Construcción y Cementos (MCC), which was present throughout the country and accounted for the remaining 50% of the market in the north.

Prices in the north-Colombian plaster market were significantly higher than in the rest of the country, due to the strength of demand and the fact that production and marketing were very concentrated.

In late 2010, Santiago Castro felt that MALISA's position was untenable in the medium to long term. In his opinion, the company lacked the financial resources necessary to compete with MCC over the long term as the competitive advantages it currently enjoyed would not last forever. One possible solution would be for a financial partner to put up the resources necessary to develop the company, which had reserves of calcium sulphate that were excellent on account of their purity, size and location.

Moreover, Mr Castro was aware that multinational firms interested in expanding in Latin America might have the company in their sights.

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Starting the Negotiations

One of these multinational firms was Plásticos Reales, S.A. (PERESA), a Spanish firm with a strategy of growth in new Latin American countries. Its general manager was Julio Hernández. Annex 1 gives audited accounting information about the company.

In 2010, PERESA's corporate development team studied the state of the market in Colombia, and suggested that the possible acquisition of Lizard was a perfect match for PERESA's strategic goals. In early 2011, Mr Hernández was entrusted with the task of starting conversations with MALISA's management with a view to negotiating a possible acquisition. The initial contacts took place in February and March, and the negotiations between the companies proceeded in an atmosphere of mutual interest and cooperation. In early March 2011 the two companies agreed to start the due diligence process.¹

By the end of March 2011 the negotiations had reached a point at which there was a general agreement about the terms of the acquisition, as regards the operational aspects and future plans. The confidentiality agreements and a first letter of intent were therefore signed.² However, the always-delicate issues of the price and form of payment remained to be discussed.

A valuation of Manufacturas lizard (MALISA)

In order to focus discussion towards a possible agreement on the price, both parties decided to make their own valuation of MALISA. To enable the purchaser (PERESA) to make its valuation, MALISA provided the accounting information listed in Annex 2.

¹ The process of due diligence is embarked upon when the parties have agreed the general terms of the merger and it is a preliminary step before signing and exchanging contracts. It involves an investigation which may be defined as a search for information by the purchasing company so as to analyse the risks affecting the company it wishes to buy. It starts at the same time as the formal negotiations. This process does not normally begin until the more general principles and at least the foundations of the transaction have been agreed by the parties, or in some cases, when a serious offer is made. See: "Fusiones y Adquisiciones en la práctica" García Estévez, P. and López Lubián, F. Delta Publicaciones. Madrid 2011.

² After the initial contact between the parties, and before the due diligence is undertaken, the parties agree the more general terms and the foundations of the transaction. When a candidate is identified, a Memorandum of Understanding is signed. The Memorandum of Understanding is a type of non-binding agreement which sets out the undertakings which may later form the basis of the contractual agreement. In it, an undertaking is declared, or an intention stated to start or continue negotiations which may lead to a final agreement on the purchase. Memoranda of Understanding share some features with written contracts but in general, are not entirely binding on the parties. Many, however, contain binding clauses, such as the non-disclosure of the agreements, a good-faith clause, or a willingness to promise exclusive negotiating rights. The importance of this document lies in the fact that it establishes the pacts that may have been reached so far and delimits the set of points on which a satisfactory agreement has to be reached. It may propose an approximate sum to be paid for the shares or assets of the company being sold. See: "Fusiones y Adquisiciones en la práctica" García Estévez, P. and López Lubián, F. Delta Publicaciones. Madrid, 2011

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Based on this information, the CEO of the vendor company, Mr Castro, proposed a value for MALISA based on its book value plus a premium. For the vendor's part, the upper and lower limits for the negotiations were in the range of 1.20 and 1.46 US dollars per share, as shown in Table 1.

Refer Table 1

In Mr Castro's opinion, as the representative of the vendor, this valuation for MALISA was entirely reasonable as the market was paying an average of 3 times EBITDA in similar operations (see Annexure 1).

Although Mr Hernández understood the reasoning behind the way the vendor had set the offered price, he was not convinced by the method. On his view, it would make more sense to try to negotiate the maximum and minimum prices thresholds based on the company's expectations and risks, and not just on the book value of its assets.

The Audit Results

As part of the due diligence process, PERESA ordered an audit on the unaudited financial statements supplied by MALISA. In late May the international audit firm in charge of the audit delivered a report in which it suggested a series of adjustments should be made to the information initially submitted by MALISA.

Table 2 shows the proposed adjustments related to the Accumulated Profit and Loss Account for the period 2008-10.

If all these adjustments were included in P&L, the accumulated result of MALISA for the period 2008-10 would be substantially different (see Annexure 2). Moreover, these new earnings did not include possible tax contingencies that might arise from these adjustments. Obviously, changes were also made to the Balance Sheet as at 31 December 2010 (Annexure 3).

Table 3 summarises the possible tax contingencies not included in the proposed adjustments.

Refer Table 2 & 3

A New valuation of MALISA

In the light of the information provided by the auditors, Mr Hernández felt that a correct valuation of MALISA should be based on these audited financial statements, as in his opinion, they gave a better picture of the operational situation of the company.

In order to negotiate the maximum and minimum price thresholds, Mr Hernández thought that both parts should reach an agreement on the value of the company in a continuity scenario (minimum price), and the value of the company in a scenario including the main synergies that would derive from the acquisition process (maximum price).

After his management team analysed MALISA's earnings after adjustments, Mr Hernández considered that the maximum and minimum prices could be summarised in the assumptions given in Annexure 4.

Counter Offer and Negotiations with MALISA

As mentioned, the date for the meeting with MALISA to discuss and negotiate PERESA's counter offer was set for 15 June 2011. Mr Hernández was aware of the importance of this meeting in order to reach an agreement on the acquisition of MALISA. In his experience, to achieve a good outcome from this sort of meetings it was important to go well prepared (with homework done in advance) and pursue a clear negotiating strategy.

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To this end, he drew up a list of the key points that needed to be addressed in order to conclude the transaction successfully:

Independently on the final price, both PERESA and MALISA (Lizard) are extremely interested in the operation. Over the course of the negotiations the level of mutual understanding has been high, and everything points to a promising future for this acquisition.

The seller (MALISA, and more specifically Mr Castro) has in mind a minimum price of around seven million dollars, based on a multiple of EBITDA and a premium on the net book value. The offer should be made in these terms.

The results of the audit have already been implicitly accepted by the seller, as mentioned in the memorandum of understanding signed in March.

In order to facilitate negotiations, it will be a good idea to differentiate the proposed adjustments from the estimated tax contingencies. Including the former is crucial to obtaining a clear idea of the operational situation of the company. The tax contingencies can be discussed and dealt with separately.

If the maximum and minimum values are analysed based on the expected future cash flows provided by PERESA, what might seller's (Lizard) response be? What reasonable arguments can it provide to increase the value?

Annexure 1: Accounting information about PERESA

Audited figures (In thousands of US dollars)

1. Profit and Loss Account. Fiscal Year 2010

Net sales		50.125
Cost of Sales		-28.520
Gross Margin		21.605
Operating Expenses		-18.547
Operating Earnings		3.058
Other Income/Expenses		-200
EBIT		2.858
Taxes		-857
Net Earnings		2.001

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2. Balance sheet as at 31-12-2010

ASSETS		LIABILITIES	
Current Assets		Current Liabilities	
Cash in hands	200		
Account Receivables	5.000	Account Paybles	3.500
Inventories	2.000	Deferred Taxes	411
Prepaid Taxes	511	Other Current Liabilities	2.000
Other Current Assets	100		
		Total Current Liabilities	5.911
Total Current Assets	7.811		
		Debt	2.000
Gross Fixed Assets	18.200		
Accumulated Depreciation	-11.000	Equity	7.100
Net Fixed Assets	7.200		
Total Assets	15.011	Total Liab + Equity	15.011

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Annexure 2: Historical and account information about MALISA

Provided by the management of Lizard. Unaudited figures. In thousands of US dollars

1. P&L Accounts

Years			<u>2.008</u>		<u>2.009</u>		<u>2.010</u>		<u>Total 2008-10</u>	
Net sales			32.300		32.244		31.275		95.819	
Cost of Sales			-18.773	-58%	-18.741	-58%	-18.516	-59%	-56.030	-58%
Gross Margin			13.527	42%	13.503	42%	12.759	41%	39.789	42%
Operating Expenses			-10.666	-33%	-12.639	-39%	-10.973	-35%	-34.278	-36%
Operating Earnings			2.861	9%	864	3%	1.787	6%	5.512	6%
Other Income/Expenses			534	2%	105	0%	0	0%	639	1%
EBIT			3.395	11%	969	3%	1.787	6%	6.151	6%
Taxes			-852	-3%	-538	-2%	-536	-2%	-1.926	-2%
EPS			-193	-1%	0	0%	0	0%	-193	0%
Net Earnings			2.350	7%	431	1%	1.251	4%	4.032	4%

Variation in EBITDA (earnings before interest, tax, depreciation and amortisation):

Years			<u>2008</u>		<u>2009</u>		<u>2010</u>		<u>Total 2008-10</u>	
Net sales			32.300	100%	32.244	100%	31.275	100%	95.819	
Operating Earnings			2.861	9%	864	3%	1.787	6%	5.512	
Depreciation & Amort Exp			646	2%	645	2%	626	2%	1.916	
EBITDA			3.507	11%	1.509	5%	2.412	8%	7.428	
EBITDA average									2.476	

E/EBITDA ratio paid in recent transactions: 3

Case Studies in Finance and Accounting

2. Balance sheet as at 31-12-2010

ASSETS		LIABILITIES	
Current Assets		Current Liabilities	
Cash in hands	3.601		
Account Receivables	4.729	Account Paybles	4.425
Inventories	1.374	Deferred Taxes	484
Prepaid Taxes	511	Other Current Liabilities	2.888
Other Current Assets	51		
		Total Current Liabilities	7.797
Total Current Assets	10.266		
Gross Fixed Assets	9.797		
Accummulated Depreciation	-6.000	Equity	6.266
Net Fixed Assets	3.797		
Total Assets	14.063	Total Liab + Equity	14.063

Number of shares: 6,000

Annexure 3: P&L account including adjustments proposed by the auditors. Excluding possible tax contingencies. (Figures in thousands of US dollars)

	Initial 2008-10	Purchases Adjust	Dividends Adjust	VAT Adjust	Invent Adjust	Bad debts Adjust	EPS Adjust	Capit Inv Adjust	Rent Adjust	P&L after Adj	
Net sales	95.819					-1.760				94.059	
Cost of Sales	-56.030	-445		2.626	-561					-54.410	-58%
Gross Margin	39.789									39.649	42%
Operating Expenses	-34.278		6.790	1.126				3.220	-1.025	-24.167	-26%
Operating Earnings	5.512									15.482	16%
Other Income/Expenses	639									639	1%
EBIT	6.151									16.121	17%
Taxes	-1.926									-1.926	-2%
EPS	-193						-2.675			-2.868	-3%
Net Earnings	4.032									11.327	12%
Extraor Tax Adj										-15.000	-16%
Net Incom after adj										-3.673	-4%

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Estimated Balance Sheet as at 31-12-10, including proposed adjustments

	Initial	Bad Debt	Invent	EPS	Fixed As	Rent	Other	Balance	
	Balance	Adjust	Adjust	Adjust	Adjust	Adjust	Adjust	after Adjust	
ASSETS									
Current Assets									
Cash in hands	3.601			-2.675				926	
Account Receivables	4.729	-1.760						2.969	
Inventories	1.374		-561					813	
Prepaid Taxes	511							511	
Other Current Assets	51						3.307	3.358	
Total Current Assets	10.266							8.577	
Gross Fixed Assets	9.797				3.220			13.017	
Accumulated Depreciation	-6.000							-6.000	
Net Fixed Assets	3.797							7.017	
Total Assets	14.063							15.594	
LIABILITIES									
Current Liabilities									
Account Paybles	4.425							4.425	
Deferred Taxes	484							484	
Other Current Liabilities	2.888					1.025		3.913	
Total Current Liabilities	7.797							8.822	
Equity	6.266	-1.760	-561	-2.675	3.220	-1.025	3.307	6.772	
Total Liab + Equity	14.063							15.594	

MALISA's estimated FCF from Operations for the period 2008-10

EBIT	16.121
Taxes (30%)	-4.836
Net Earnings before EPS	11.284
EPS (10% de EBT y EPS)	-1.612
Net Earnings after EPS	9.672
Depreciation	1.916
Operational FCF	11.589
Operational FCF as % Sales	12%

Case Studies in Finance and Accounting

Annexure 4: Scenarios for the valuation of MALISA

Minimum price scenario (Continuity)

Sales: year-on-year increase in sales of 5%.

FCF from Operations: 12% of each year's sales (see Annex 2). Amortisation/depreciation remains stable at 2% of sales.

FCF from operational working capital: Working capital will increase by the same percentage as sales.

FCF from investments in fixed assets: An annual investment in maintenance will be needed that is equal to the amortisation/depreciation charges. In addition, Lizard will need new investments for a value of 2,000 in year 1. These investments will be maintained over the following years, growing by 5% each year.

Horizon of analysis: 5 years. The terminal value in the final year is estimated as a perpetuity with a growth of 3%.

In order to estimate WACC it is assumed that:

The current capital structure does not change.

$K_d = 5\%$

$R_f = 4\%$

$PM = 4\%$

$\text{Beta}_{e,u} = 1.2$

There is a country risk premium of 200 basis points.

The tax rate is 30%.

Maximum Price Scenario (Including Synergies)

The synergies PERESA will obtain through its purchase of MALISA may be summarised by the following points:

FCF from Operations becomes 13% as of the second year

FCF from operational working capital: The working capital would increase by 4% as of the third year.

These improvements rest on three basic points:

The possibility of introducing new products and improving the mix of the existing ones.

Possible improvements in production processes, through enhancements in quality and a reduction in costs.

Bolstering of the sales and marketing area, which would enable access to new customers and markets, and it would also consider exports.

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Table 1: Summary of the valuations of MALISA proposed by the management of Lizard

Accounting Value of Equity (thousand of US dollars)	6.266
Lower premium on accounting value	15%
Lower value of MALISA's Equity (thousand of US dollars)	7.206
Lower price of MALISA's share (US dollars)	1,20
Ratio E/EBITDA at lower price	2,91
Higher premium on accounting value	40%
Higher value of MALISA's Equity (thousand of US dollars)	8.772
Higher price of MALISA's share (US dollars)	1,46
Ratio E/EBITDA at higher price	3,54

Table 2: Adjustments to MALISA's Profit and Loss Accounts. Period 2008-10 (Figures in thousands of US dollars)

	<u>Effect in Earnings</u>
Adjustment in Cost of Sales due to non accounted purchases	-445
Adjustment in Expenses due to dividends paid improperly accounted	6.790
Adjustment in Cost of Sales due to VAT accounted as a cost	2.626
Adjustment in Expenses due to VAT accounted as an expense	1.126
Adjustment in Cost of Sales due to overvaluing inventories	-561
Adjustment in Sales for bad debts	-1.760
Adjustment in EPS	-2.675
Adjustment in Expenses due to non accounted rent	-1.025
Adjustment in Expenses due to capitalized investments	3.220
Total effect in Operating Earnings	7.295

EPS = Employee Profit Sharing. Estimated at 10% of the earnings before taxes and EPS.

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Table 3: Summary of possible tax contingencies affecting Lizard, as at 31-12-2010. (Figures in thousands of US dollars)

				Interest		
<u>Concept</u>			<u>Amount</u>	<u>Expenses</u>	<u>Fines</u>	<u>Total</u>
Income tax			10.000	500	2.000	12.500
Value-Added tax			1.000	250	100	1.350
Employee profit sharing (EPS)			200	100	32	332
Payroll tax			200	100	150	450
Other fines			0	0	368	368
Totals			11.400	950	2.650	15.000

Case Studies in Finance and Accounting

BCE Inc. Privatization: Fact or Fiction?

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Case Studies in Finance and Accounting

Introduction

As he read his newspaper on the morning of March 29, 2007, Michael J. Sabia, CEO of BCE Inc. (Bell Canada) (NYSE/Toronto: BCE), could not help but feel the pressure being raised a notch. Rumours had been rife for several weeks that a private investment company would attempt to acquire control of his corporation. Now, in a financial paper, he was reading more details confirming that talks between Bell Canada and the New York firm Kohlberg Kravis Roberts & Co. regarding the private buy-out were at an advanced stage.

The past weeks' rumors had been enough that Bell Canada shares were trading at \$29.15; two days before they had hit a 52-week high of \$ 30.02. Mr. Sabia well knew that another official denial would have absolutely no impact and in fact would do nothing but add plausibility to the rumors. Only two days before, a Bell Canada spokesperson had denied the existence of the buy-out talks, but that had merely put a momentary brake on the steady rise in the price of BCE shares. Some decisions had to be made very quickly.

The offer that was the subject of so much speculation did in fact exist. It was in the neighborhood of \$30 billion, 20% more than the market capitalization of Bell Canada, which was valued at \$24 billion. But there were multiple questions to which Michael Sabia had to find an answer. Was the value of the offer really as good as it looked given Bell's current financial situation and its future outlook? How would the money be paid? Should the offer be approved and recommended, first to the members of Bell's board of directors and then to its shareholders? Would it be better to wait until the other organizations that had indicated an interest actually came out with their offers? And what position would the Canadian communications regulatory authorities take, given that Canadian law prohibited foreign companies from owning a majority of Bell Canada shares? So many questions whose answers had to be part of Mr. Sabia's eagerly awaited final official report.

BCE Inc. and the Canadian Telecommunications Market

BCE Inc. is Canada's oldest and largest communications company with over \$17 billion in revenues in 2006. BCE offers a wide variety of wire line, voice and wireless communications services to both residential, business and wholesale customers. In 2006, BCE derived 30% of its total revenues from "local and access" products and services, 24% from "data", 20% from "wireless", 10% from "long distance", 9% from "terminal sales and other" and 7% from the "video" segment. Between 2005 and 2006, BCE's "local and access" and "long distance" as well as "terminal sales and other" segments were losing revenue share to competition, showing declines in revenues of the order of 4.6%, 12.5%, and 3.7% respectively. The "video" and "wireless" segments were adding revenues at 17.8% and 13.2%, respectively. The "data" segment showed slower revenue growth with only 2.6%.

40% of BCE Inc.'s operating revenue came from its "residential" segment, 33% from its "business" segment, 17% from its "Bell Aliant" segment, 8% from its "other Bell Canada" segment and 2% from "other BCE" segment (BCE Inc. Annual Report 2006). As such BCE was a well-diversified large telecommunications company unlike many of its Canadian and even US counterparts.

Following rapid and breathless changes in technology, competitive and regulatory landscapes and increasing consumer demands, the telecom giant reorganized its business holding structure in the spring of 1983 with BCE Inc. becoming the parent company of Bell Canada, Bell Aliant and other Bell Canada segments, notably the wholesale business providing access and network services to other providers of local, long distance, wireless, internet, data and other telecommunications services (e.g., Northwestel).

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The product and service line of BCE Inc. includes local and wire line access and long distance services, data and high-speed internet subscriptions, wireless and video subscriptions (see product line analysis chart p.27 AR2006). In 2006 and early 2007, the Canadian telecom market was changing rapidly, following other parts of the world and the extensive internet and wireless penetration rates worldwide. The traditional wire line telephone service was undergoing one of the sharpest drops in subscriptions and a phenomenal growth in wireless subscriptions continued to characterize the industry as a whole. The wireless and interactive data, video and other internet-based services were contributing more profit margin enhancement power to the major telecom firms.

While the telecom industry in Canada is dominated by few major players, such as Telus Corp., Rogers Communications Inc., Shaw Communications Inc. and Manitoba Telecommunications Services Inc., it is quite heavily regulated by federal government agencies, namely the CRTC (Canadian Radio-television and Telecommunications Commission) The CRTC regulates prices and tariffs and access to facilities such as telecom networks. It attempts to balance competition requests for increased access to network infrastructure with the rights of the leading companies such as BCE and Telus to compete effectively and freely with market entrants and rivals by deciding how much to charge for access to those facilities and networks.

Telus and Rogers are among the closest and fiercest competitors to Bell Canada and Bell Aliant (BCE subsidiaries). Although Rogers is mainly a wireless and cable player, it is well positioned to capture market share from both BCE and Telus, which it did as consumers fled wire line to wireless and internet services, and is further encouraged by the CRTC decision to let consumers keep their wire line numbers should they decide to switch to wireless instead.

By fall of 2006, the telecommunications industry in Canada was restructuring itself to provide more shareholder returns and respond more efficiently to competitive foreign and regulatory pressures. Telus Corp. for example announced a plan to restructure its business by proposing to move to an income trust with an estimated market capitalization of C\$20 billion. Telus intended to consolidate its shares into one single class of units following this income trust proposal and needed two thirds of its shareholder approval to proceed. It was “inspired” by BCE Inc.’s Bell Aliant Regional Communications Income Fund created earlier in that year and figured a similar move would make its shareholders “happy,” since it had been highly profitable particularly in its wireless high-growth business and would pass some of those gains in a tax-efficient way to its shareholders. Income trusts allow the companies to pay out regular distributions to unit holders before corporate taxes are considered and taxes on such distributions are paid by the unit holders rather than the company. Telus’s plans to convert to an income trust were abandoned following the statement by the minister of finance that income trusts would be taxable at the company level in November of that year.

Bell Canada’s Principal Competitors

BCE Inc. faces increased competition from its traditional competitors (i.e., telephone companies) but also from non-traditional players such as cable and broadcasting companies. The rapid and transformative evolution of the telecommunications sector in North-America and worldwide, following the rapid penetration of personal computers, the internet, VoIP, IPTV, and other information and communication services, had blurred the frontiers between telecommunications, wireless and phone manufacturers, broadcasting companies and telephone giants. With its legacy wire-line networks and systems at risk of quickly becoming obsolete and its heavy reliance on capital to keep operating its networks and equipment, BCE was becoming less competitive in its own market space. The CRTC decision to uphold its May 2005 ruling that allows it to regulate VoIP services pricing did not help BCE or Telus

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(its main competitor) to use their pricing power over the new rivals in setting their product and service offerings. Later on and in spring 2007, the deregulation of the local telephone industry in Canada was well underway. The industry minister amended changes to the CRTC final proposals to speed up the deregulation of pricing and competition structure in Canada, citing consumer benefits from increased competition and more reliance on market forces and innovation incentives in the telecom industry.

Bell Canada's Financial Situation

With 55,000 employees and a market capitalization of \$20 billion, Bell is the colossus of the Canadian telecom industry. It is also one of the few widely held Canadian corporations. The Ontario Teachers' Pension Plan (OTPP), with only 6.3% of its shares, is Bell's largest shareholder.

Over the previous year, OTPP had not disguised its dissatisfaction with the market performance of Bell's shares, which it attributed in large part to the quality of the corporation's management. In fact, since its high of \$45 in 2001, the price of Bell shares had dropped in 2002, and continued to fluctuate between \$25 and \$35 over the next five years without ever really showing any signs of picking up.

However, Bell shares have often been categorized as a 'Strong Buy' by brokers and investment dealers. With a beta between 0.3 and 0.5, its shares have always been regarded as a safe long-term investment with good revenue stability for investors.

Appendix 1 shows Bell Canada's main financial and accounting indicators to December 31 for the years for 2004, 2005 and 2006, as well as some projections for the first two quarters of 2007.

Bell Canada's Future Outlook

Because of its place in the Canadian economy in general and the stock market in particular, Bell Canada has always been followed by financial analysts and investment advisers and consultants. But several surveys conducted over the previous two years indicated that the company did not enjoy the same reputation with its customers as it did with its shareholders.

For this reason, Lemay-Yates Associates Inc. (LYA), a management consulting firm specializing in the telecommunications sector, had recommended to Bell that it improve its customers' perception by emphasizing a more aggressive innovation strategy. LYA told Bell that it would have to take action if it was to remain the major player in its sector over the next 5 to 10 years, whatever the outcome of the takeover process. Action would inevitably have to be along two main lines:

- Specialization in the most promising future niches, which would entail disposing of some of its assets. Bell could no longer be satisfied with its residential telephone and cable television service. The future of communications was moving rapidly to wireless and fibre optics, and therefore IP telephone and television.
- Geographic diversification through a carefully planned internationalization strategy. "It's a shame," said LYA, that this Canadian telecom giant had almost no international operations. It should not be satisfied with the regulatory regime in Canada, which had for so long protected it from foreign takeovers, but should be much more aggressive in taking over foreign companies. Moreover, LYA said, there was very little potential for Bell to grow significantly in Canada.

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Features of the Offer

The first offer to buy came from the New York firm Kohlberg Kravis Roberts & Co. Aware of the regulatory barriers that prohibit foreign companies from holding more than 47% of a Canadian telecom company, the US firm had formed an alliance with the Canada Pension Plan Fund (CPPF) to make an offer of almost \$30 billion in cash. Several other companies and pension funds were also showing interest. Another private New York investment company, Ceberus Capital Management (CCM), with different Canadian partners, made a partial offer with a more complex payment scheme. There were rumors as well of interest on the part of Telus.

But a month later, the most promising offer so far seemed to be that of the OTPP in partnership with the New York Equity multinational Providence Equity Partners (PEP), one of the biggest private investment companies specializing in communications in the world. The offer's net value was \$34.8 billion, plus a \$16.9 billion buy-back of the company's debts, making its total value \$51.7 billion.

If the offer was accepted as it stood, OTPP and PEP would pay \$42.75 per share in cash, which represented an average capital gain of almost 40% over the price of Bell shares before all the rumours of talks started. If successful, this would be the biggest takeover ever seen in Canada. The result would be that OTPP's stake in Bell would go from 6.3% to 52%, while that of its US partner would be 32%. The remaining shares would be held by a few private investors.

Just because the OTPP-PEP offer was the best so far did not necessarily mean that it was a good one. Michael Sabia was well aware that Bell's shareholders could vote against the offer for one reason or another. They might consider it undervalued, given the corporation's current financial situation and its future outlook, or deem the method of payment disadvantageous to them. They might also simply refuse to give up what had always been considered one of the few sure long-term bets and sources of stable dividends for individual Canadian investors.

Mr. Sabia had the difficult task of recommending to his shareholders whether the offer should be accepted or not, in a report that would have to respond to all their misgivings.

Case Studies in Finance and Accounting

Appendix 1

This appendix presents the main financial and accounting indicators for Bell Canada on December 31 of 2004, 2005 and 2006, as well as some projections for the first two quarters of 2007. The figures are expressed in thousands of Canadian dollars.

	2004	2005	2006	1st quarter 2007	2nd quarter 2007
Extract from Operating Statement					
Total Revenue	17,009,000	17,551,000	17,656,000	4,343,000	4,374,000
Net Revenue	1,593,000	1,961,000	2,007,000	529,000	700,000
Operations Cash Flow	5,130,000	5,700,000	5,611,000		
Extract from Balance Sheet					
Total Assets	39,140,000	40,482,000	37,171,000		
Short-term Assets	3,708,000	3,683,000	3,684,000		
Fixed Assets	21,104,000	21,772,000	19,533,000		
Intangible Assets	12,634,000	10,279,000	12,591,000		
Short-term Debt	5,467,000	5,587,000	4,688,000		
Long-term Debt	11,685,000	11,855,000	11,795,000		
Common Stock	16,781,000	16,806,000	13,487,000		
Retained Earnings	-5,432,000	-4,763,000	-4,343,000		
Per Share Data (in dollars)					
Book Value	13.342	14.074	14.483		
Dividends	1.2	1.32	1.32		
Earnings	1.65	2.04	2.25	0.62	0.83
Top Price	30.28	33.00	34.250		
Bottom Price	25.64	26.45	25.32		
Financial Ratios					
Debt over Equity Capital	0.92	0.88	0.96		
Distribution Ratio	72.88	64.62	58.44		
Earnings Margin	10.14	12.26	12.6		
Price/Book Value	2.17	1.98	2.17		
Price/Earnings	17.53	13.66	13.96		
Return on Equity Capital	12.56	14.89	15.65		
Return on Assets	4.41	5.32	5.98		
Compensation: Michael J. Sabia, CEO (in dollars)					
Salary	1,250,000	1,250,000	1,000,000		
Bonus	114,614	34,700	33,006		
Market Data					
Beta	0.3	0.4	0.5		
Return on 3-Month Treasury Bills	2.35%	3.00%	3.8%		

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Credit Ratings

	BCE INC.			
	S&P ⁽¹⁾	DBRS ⁽²⁾	MOODY'S ⁽³⁾	FITCH ⁽⁴⁾
Commercial paper	A-1 (low)	R-1 (low)	P-2	-
Extendible commercial notes	-	R-2 (high)	-	-
Long-term debt	BBB+	A (low)	BAA2	BBB+
Preferred shares	P-2	PFD-2 (low)	-	-

	BELL CANADA			
	S&P ⁽¹⁾	DBRS ⁽²⁾	MOODY'S ⁽³⁾	FITCH ⁽⁴⁾
Commercial paper	A-1 (low)	R-1 (low)	P-2	-
Extendible commercial notes	-	R-1 (low)	-	-
Long-term debt	A-	A	BAA1	BBB+
Preferred shares	BBB+	BBB (high)	BAA2	BBB

(1) Standard & Poor's, a division of McGraw-Hill Companies, Inc

(2) Dominion Bond Rating Services Limited

(3) Moody's Investors Services, Inc.

(4) Fitch Ratings Ltd.

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Appendix 2

This appendix shows the principal financial and accounting indicators for Bell Canada's main competitors on December 31 of 2004, 2005 and 2006, as well as some projections for the first two quarters of 2007. The figures are expressed in thousands of Canadian dollars.

	Extracts from Operating Statements					
	Total Revenue		Net Revenue		Operations Cash Flow	
	2005	2006	2005	2006	2005	2006
Manitoba Telecom Services, Inc.	1,980,000	1,926,000	213,000	299,000	428,000	422,000
Rogers Communications Inc.	7,334,000	8,838,000	622,000	637,000	1,253,000	2,449,000
Shaw Communications Inc.	2,209,000	2,459,000	458,000	388,000	728,000	846,000
TELUS Corp.	8,142,000	8,681,000	700,000	1,145,000	2,914,000	2,803,000

	Extracts from Balance Sheets							
	Total Assets		Short-term Assets		Fixed Assets		Intangible Assets	
	2005	2006	2005	2006	2005	2006	2005	2006
Manitoba Telecom Services, Inc.	2,984,000	2,921,000	376,000	465,000	1,507,000	1,452,000	97,000	52,000
Rogers Communications Inc.	12,545,000	12,371,000	1,289,000	1,734,000	6,152,000	6,732,000	5,663	4,931
Shaw Communications Inc.	7,430,000	7,661,000	180,000	352,000	2,189,000	2,250,000	4,772,000	4,779,000
TELUS Corp.	16,222,000	16,661,000	1,242,000	1,344,000	7,339,000	7,117,000	6,758,000	7,033,000

	Extracts from Balance Sheets (cont.)							
	Short-term Debt		Long-term Debt		Common Stock		Retained Earnings	
	2005	2006	2005	2006	2005	2006	2005	2006
Manitoba Telecom Services, Inc.	590,000	536,000	964,000	878,000	1,333,000	1,322,000	96,000	183,000
Rogers Communications Inc.	1,992,000	2,496,000	8,314,000	7,409,000	4,134,000	4,233,000	- 606,000	- 33,000
Shaw Communications Inc.	564,000	593,000	5,268,000	5,258,000	2,026,000	1,982,000	- 428,000	- 172,000
TELUS Corp.	2,027,000	3,781,000	7,299,000	5,808,000	6,021,000	5,848,000	848,000	1,199,000

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Per Share Data

Others

	Share (\$)	Price	Average Share Price (2003 to 2006) (\$)	Book Value (\$)		Dividend (\$)		Dividend (%)		Dividend Growth 2003 to 2006 (%)	Beta	Credit Rating	Number of Employees	
	2005	2006	2006	2005	2006	2005	2006	2005	2006	2005	2006	2006	2005	2006
Manitoba Telecom Services, Inc.	0.40	46.40	43.91	21.11	22.54	2.60	2.60	6.4	5.6	39.9	0.50	BBB	5,837	5,837
Rogers Communications Inc.	4.60	34.70	17.17	5.62	6.61	0.06	0.08	0.3	0.2	101.8	0.89	BB+	25,800	25,800
Shaw Communications Inc	2.52	16.60	11.82	3.63	4.21	0.17	0.26	1.4	1.6	103.9	0.94	BB+	10,000	10,000
TELUS Corp.	7.86	53.52	35.35	19.62	20.86	0.88	1.20	1.8	2.2	25.7	0.68	BBB+	35,300	35,300

Financial Ratios

		Earnings		Debt to Equity Capital		Interest Ratio	Coverage	Dividend Payout Ratio		Net Earnings Margin (%)		Price/Book Value		Price/Earnings		Return Equity (%)	on Capital
		2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Manitoba Services, Inc.	Telecom	3.34	2.49	0.56	0.50	39.51	36.40	0.89	1.82	10.8	15.5	1.91	2.06	12.10	18.60	15.2	20.4
Rogers Inc.	Communications	0.93	- 0.01	1.89	1.43	0.94	2.08	N/A	0.08	8.5	7.2	4.38	5.25	N/A	37.10	-1.4	16.1
Shaw Inc.	Communications	0.26	0.51	1.12	1.51	2.06	2.28	0.46	0.23	20.7	15.8	3.45	3.94	48.90	32.87	7.1	23.7
TELUS Corp.		2.04	2.95	0.67	0.68	7.21	5.38	0.45	0.36	8.6	13.2	2.44	2.57	23.46	18.14	10.1	16.5

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	Return on Assets (%)		Return on Investment (%)	
	2005	2006	2005	2006
Manitoba Telecom Services, Inc.	7.2	10.1	11.0	10.1
Rogers Communications Inc.	-33.0	4.5	5.2	9.9
Shaw Communications Inc.	2.1	6.1	7.5	10.9
TELUS Corp.	4.1	7.0	9.1	13.1

Appendix 3: Annual Financial Information

The following tables show selected consolidated financial data, prepared in accordance with Canadian GAAP, for each year from 2002 to 2006.

	2006	2005	2004	2003	2002
Operations					
Operating revenues	17,713	17,605	17,009	16,752	17,114
Operating expenses	(10,384)	(10,371)	(9,895)	(9,704)	(10,009)
EBITDA	7,329	7,234	7,114	7,048	7,105
Amortization expense	(3,129)	(3,061)	(3,000)	(3,001)	(2,932)
Net benefit plans (cost) credit	(513)	(359)	(241)	(168)	36
Restructuring and other items	(355)	(55)	(1,219)	(14)	(768)
Operating income	3,332	3,759	2,654	3,865	3,441
Other (expense) income	(176)	28	439	214	3,139
Impairment charge	—	—	—	—	(765)
Interest expense	(952)	(949)	(961)	(1,064)	(1,080)
Pre-tax earnings from continuing operations	2,204	2,838	2,132	3,015	4,735
Income taxes	(85)	(803)	(605)	(1,079)	(1,551)
Non-controlling interest	(228)	(201)	(132)	(166)	(860)
Earnings from continuing operations	1,891	1,834	1,395	1,770	2,324
Discontinued operations	116	127	129	45	83
Net earnings before extraordinary gain	2,007	1,961	1,524	1,815	2,407
Extraordinary gain	—	—	69	—	—
Net earnings	2,007	1,961	1,593	1,815	2,407
Dividends on preferred shares	(70)	(70)	(70)	(64)	(59)
Premium on redemption of preferred shares	—	—	—	(7)	(6)
Net earnings applicable to common shares	1,937	1,891	1,523	1,744	2,342
Included in net earnings:					
Net gains on investments					
Continuing operations	419	33	410	(81)	1,351

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Discontinued operations	106	(6)	11	83	96
Restructuring and other items	(222)	(37)	(770)	3	(441)
Impairment charge	—	—	—	—	(26)
Cost incurred to form Bell Aliant	(42)	—	—	—	—
Net earnings per common share:					
Continuing operations – basic	2.12	1.90	1.44	1.85	2.66
Continuing operations – diluted	2.12	1.90	1.44	1.84	2.62
Net earnings – basic	2.25	2.04	1.65	1.90	2.66
Net earnings – diluted	2.25	2.04	1.65	1.89	2.62
Ratios					
EBITDA margin (%)	41.4%	41.1%	41.8%	42.1%	41.5%
EBITDA to interest ratio (times)	7.70	7.62	7.40	6.62	6.58
Operating margin (%)	18.8%	21.4%	15.6%	23.1%	20.1%
ROE (%)	15.7%	14.8%	12.5%	15.2%	17.8%
	2006	2005	2004	2003	2002
Balance Sheet					
Total assets	36,957	40,482	39,133	39,846	39,388
Long-term debt (including current portion)	12,817	12,925	12,312	13,593	14,220
Net debt	12,272	12,667	12,175	13,115	14,702
Total capitalization	27,819	30,286	29,107	30,076	30,880
Preferred shares	1,670	1,670	1,670	1,670	1,510
Common shareholders' equity	11,697	13,051	12,354	11,895	11,090
Ratios					
Net debt to total capitalization (%)	44.1	41.8	41.8	43.6	47.6
Net debt to EBITDA (times)	1.67	1.75	1.71	1.86	2.07
Total debt to total assets (times)	0.35	0.32	0.32	0.34	0.38
Long-term debt to equity (times)	0.96	0.88	0.88	1.00	1.13
Cash Flows					
Cash flows from operating activities	5,389	5,337	5,268	5,717	4,545
Cash flows from investing activities	(3,701)	(3,762)	(3,551)	(2,797)	(6,878)
Capital expenditures	(3,133)	(3,357)	(3,272)	(3,052)	(3,644)
Business acquisitions	(71)	(228)	(1,118)	(54)	(6,432)
Business dispositions	—	—	2	10	3,166
Bell Aliant	(255)	—	—	—	—
Other investing activities	(2)	39	183	167	35
Cash flows from financing activities	(3,639)	(1,613)	(2,571)	(2,704)	3,402
Repurchase of common shares	(1,241)	—	—	—	—

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Net issuance of equity instruments	29	25	32	172	2,819
Net (repayment) issuance of debt instruments	432	47	1,140	1,541	2,047
Financing activities of subsidiaries with third parties	(292)	(77)	(17)	(29)	91
Cash dividends paid on common shares	(1,169)	(1,195)	(1,108)	(1,029)	(999)
Cash dividends paid on preferred shares	(84)	(86)	(85)	(61)	(43)
Cash dividends paid by subsidiaries to non-controlling interest	(293)	(169)	(179)	(172)	(468)
Cash provided by (used in) discontinued operations	2,087	103	512	200	(1,332)
Ratios					
Free cash flow	708	569	807	1,570	(574)
Capital intensity (%)	17.7%	19.1%	19.2%	18.2%	21.3%
Cash flow per share (dollars)	2.62	2.14	2.16	2.90	1.06
Cash flow yield (%)	7.4%	6.8%	7.2%	9.7%	1.6%
Share Information					
Average number of common shares (millions)	861.4	926.8	924.6	920.3	847.9
Common shares outstanding at end of year (millions)	807.6	927.3	925.9	924.0	915.9
Market capitalization	25,359	25,844	26,777	26,704	26,103
Dividends declared per common share (dollars)	1.32	1.32	1.20	1.20	1.20
Book value per share (dollars)	14.48	14.07	13.34	12.87	12.11
Total dividends declared on common shares	(1,132)	(1,222)	(1,110)	(1,105)	(1,031)
Total dividends declared on preferred shares	(70)	(70)	(70)	(64)	(59)
Market price per common share (dollars)					
High	32.92	32.95	30.00	32.35	36.87
Low	25.56	26.60	25.75	26.60	23.00
Close	31.40	27.87	28.92	28.90	28.50
Ratios					
Common dividend yield (%)	4.6%	4.6%	4.1%	3.9%	3.8%
Common dividend payout ratio (%)	60.4%	63.2%	72.8%	59.0%	42.7%
Price to earnings ratio (times)	13.96	13.66	17.53	15.21	10.71
Price to book ratio (times)	2.17	1.98	2.17	2.25	2.35
Price to cash flow ratio (times)	11.98	13.02	13.39	9.97	26.89
Other Data					
Number of employees (thousands) (1)	54	56	51	54	57

(1) The number of employees for 2004 excludes virtually all employees who left under the voluntary departure program of 2004.

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Annual Operational Information

The following table shows selected data on operations from 2004 to 2006.

	2006	2005	2004
Wireline			
Local network access services (thousands)	12,056	12,581	12,905
Long distance conversation minutes (millions)	18,222	18,243	18,070
Long distance average revenue per minute (cents)	9.3	10.3	11.7
Data			
High-speed Internet net activations (thousands)	267	387	350
High-speed Internet subscribers (thousands)	2,462	2,195	1,808
Dial-up Internet subscribers (thousands)	511	586	743
Wireless			
Cellular and PCS net activations (thousands)	432	516	513
Cellular and PCS subscribers (thousands)	5,873	5,441	4,925
Average revenue per unit (\$/month)	51	49	49
Churn (%) (average per month)	1.5	1.6	1.3
Cost of acquisition (\$/subscriber)	419	406	411
Paging subscribers (thousands)	281	347	427
Video			
Video net activations (thousands)	93	224	116
Video subscribers (thousands)	1,820	1,727	1,503
Average revenue per subscriber (\$/month)	54	50	49
Churn (%) (average per month)	1	0.9	1

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Quarterly Financial Information

The following table shows selected consolidated financial data by quarter for 2006 and 2005. This quarterly information is unaudited but has been prepared on the same basis as the annual consolidated financial statements.

	2006					2005				
	EXERC.	T4	T3	T2	T1	EXERC.	T4	T3	T2	T1
Operating revenues	17 713	4 547	4 422	4 388	4 356	17 605	4 539	4 408	4 368	4 290
EBITDA	7 329	1 773	1 840	1 875	1 841	7 234	1 740	1 817	1 856	1 821
Amortization expenses	(3 129)	(797)	(786)	(790)	(756)	(3 061)	(0 776)	(0 774)	(0 763)	(0 748)
Net benefit plans cost	(513)	(125)	(118)	(134)	(136)	(359)	(59)	(103)	(99)	(98)
Restructuring and other items	(355)	(91)	(126)	(50)	(88)	(55)	(24)	(31)	(5)	5
Operating income	3 332	760	810	901	861	3 759	881	909	989	980
Earnings from continuing operations	1 891	717	324	444	406	1 834	390	444	541	459
Discontinued operations	116	–	(22)	50	88	127	40	15	40	32
Net earnings	2 007	717	302	494	494	1 961	430	459	581	491
Net earnings applicable to common shares	1 937	699	285	476	477	1 891	413	441	563	474
Included in net earnings :										
Net gains on investments										
Continuing operations	419	410	8	–	1	33	–	–	33	–
Discontinued operations	106	2	(11)	35	80	(6)	–	–	(5)	(1)
Restructuring and other items	(222)	(66)	(71)	(27)	(58)	(37)	(16)	(21)	(3)	3
Cost incurred to form Bell Aliant	(42)	–	(28)	(14)	–	–	–	–	–	–
Net earnings per common share										
Continuing operations – basic	212	84	39	47	42	190	39	46	57	48
Continuing operations – diluted	212	84	39	47	42	190	39	46	57	48
Net earnings – basic	225	84	36	53	52	204	44	48	61	51
Net earnings – diluted	225	84	36	53	52	204	44	48	61	51
Average number of common shares										
outstanding (millions)	861.4	811.6	818.8	896.4	920.5	926.8	927.3	927.0	926.6	926.2

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Pacific Health Care: What should the Controller do?

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Case Studies in Finance and Accounting

Abstract

The protagonist in this case was recently hired by a non-profit organization that provides needed health care services. They are in the midst of a financial crisis which may only be temporary. He is asked to alter the accounting records for a short period of time to avoid bankruptcy. The situation presented in the case is intended to get students to think about the ethical trade-offs in an environment where the “greater good” may actually be achieved by complying with the CFO’s request to alter the records since the health, and even the lives, of some clients may be at risk if the organization were to fail. This case was designed specifically to encourage students to consult the AICPA Code of Conduct and the IMA Statement of Ethical Professional Practice and integrate these standards into their analysis of the case.

The Context

Tim Brighton is married with two children, ages 3 and 5. His wife was recently laid off from a large national bank. At this time her job prospects look bleak since her career was oriented toward the financial services industry which has been negatively impacted by the current recession.

Tim is a licensed CPA who recently accepted a position as the controller of Pacific Health Care, a medium sized non-profit organization specializing in providing healthcare services to low income residents. Until recently, Tim was working for a large regional CPA firm where he had a variety of audit clients including non-profit organizations. Tim was tired of the long hours and the pressure of public accounting and believed that working in the non-profit sector would be relatively free of stress and that the hours would be more predictable. When he accepted the position of controller at Pacific Health Care Tim received an increase in compensation. Since he came to work for Pacific, Tim has heard that the prior controller was terminated and that it was a messy termination and that a wrongful termination lawsuit is pending.

Pacific derives about eighty percent of its revenue from contracts with the city and the state. The remaining twenty percent comes from institutional and individual giving. Pacific has a great reputation in the community because of the high quality of the services they provide.

The current recession has materially diminished the sources of funding available to both state and local governments. Consequently, contracts between Pacific and the municipalities that were once “automatic renewals” have become less certain. Contracts that are renewed often times have provisions reducing the reimbursed amounts for service units (health care services provided to clients). The nonrenewal of some contracts and the lower reimbursement amounts on new contracts is beginning to reduce working capital to dangerously low levels.

Pacific has a line of credit with a regional bank in the amount of \$500,000. The current economic circumstances have resulted in Pacific needing to utilize the entire \$500,000 line of credit with little hope of being able to pay down the debt in the next year. Pacific is using the line of credit as a source of permanent financing and Tim realizes that if the line is not renewed an immediate liquidity crisis would result. The bank requires that the line be reviewed twice yearly which entails providing them with the most recent financial statements. The six month review is next week.

Tim reports to the CFO of Pacific, Amanda Mathews. Tim has quickly learned that Amanda is a hard driving, focused executive and has aspirations to become the CEO sometime in the future. She tolerates no dissention and views discussing issues as a waste of time because of her certainty of being correct.

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Ms. Mathews is concerned that the current financial statements will not be satisfactory to the bank. The statements reflect a fast deterioration of working capital approaching a 1:1 ratio with current liabilities needing to be paid in the next thirty days but amounts due from city and state agencies expected to be received in the next 60-120 days. The operating statement is currently showing an operating loss. Ms. Mathews is concerned that the statements could cause the bank to increase the interest rate on the line of credit or cause the line of credit to be cancelled. The cancellation of the line of credit would bring on such a liquidity crisis that it is doubtful that Pacific could remain a going concern.

The CFO has approached Tim to discuss the current financial situation and current financial statements. She indicates to Tim that she believes that certain modifications could be made to the statements which would show Pacific in a more favorable financial and operating position. She tells Tim that it is almost certain that Pacific will receive a \$750,000 grant in the next 4-5 months from a national health care organization. Ms. Mathews believes that this will eliminate the organization's liquidity problem.

Tim knows that he and the CFO must sign a cover letter accompanying the financial statements going to the bank. The letter, in essence, states that the accompanying financial statements, to the best of their knowledge and belief, present fairly Pacific's financial position and the operating results in accordance with generally accepted accounting principles. Tim questions the CFO about the implication of "modifying the statements" and signing such a letter. She emphatically states that this type of "earnings management" is very common in both the profit and non-profit sectors of the economy. When survival of an entity is at stake such financial statement modification is the only thing an entity can do. "After all, where is your loyalty, to the bank or to our clients who depend on the healthcare services we provide? Any adjustments you make to the books will be reversed once we receive the \$750,000 grant and no one will know about the "modified" financial statements but you and me. Also, our audit is over six months away."

Tim knows the dire consequences of his telling the CFO he will not modify the financial statements or sign a letter accompanying the financial statements. Tim decides to postpone consideration of the long-term structural cost issues and he begins to think about how he could modify the accrual based financial statements.

His ideas are beginning to evolve:

1. Accrue revenues not yet due from the city and state. His rationalization is these items are under a contract and they will be due once Pacific provides the services.
2. Exclude certain accrued expenses using the rationalization that these items do not need to be paid at this time.
3. Reclassify certain noncurrent assets as current and classify certain current liabilities as noncurrent. Tim believes that many times such classification is somewhat subjective and he is merely using his judgment.

Tim is pleased with his ideas because these modifications will improve both the working capital picture as well as improve the operating results of Pacific. Yet, he is troubled that he has been asked by the CFO to change the financial statements so that Pacific looks favorable to the bank. He is equally concerned that he will need to provide his signature to the letter accompanying the statements. Tim decides to leave the office and head home to discuss these issues with his wife Maria.

Tim and Maria prepare the children's dinner and ready them for bed. Once Maria and Tim have time alone Tim describes the events of his day. He describes the conversation with

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Amanda. He outlines Pacific's financial problems and the liquidity and going concern crisis that will be faced if the bank does not renew the line of credit. He tells Maria that he must modify the statements in order for the organization to have a reasonable chance of a renewed credit line. He discusses his professional and ethical responsibilities to the profession as well as his responsibility to the general public. He asks for Maria's perspective on the dilemma he faces.

Maria does not hesitate to offer her opinion. "Shouldn't you consider the clients of Pacific first? Many of those people would receive no health care without Pacific and some of them could even die. It seems to me that temporarily adjusting the financial statements is a small price to pay to keep the services of Pacific available to your clients. Face it Tim, professional ethics always sounds somewhat attractive in the classroom but what about the real world?"

After a pause, Maria continues. "I think that you also have to consider your family. You know, if you refuse to change the financial statements Amanda will probably fire you immediately and Pacific will not pay severance. Where will you find a job? We have had a hard time financially since I have been out of work. How would we manage if you lost your job? Are you prepared to risk your family's well-being?"

Tim ponders the events of the day. "Ethical issues are much more difficult in reality than in the classroom-I never dreamed I would be placed in such a difficult position."

Questions for Discussion

1. Students should consult the Institute of Managerial Accountant's (IMA) Statement of Ethical Professional Practice and the American Institute of Certified Public Accountants (AICPA) Code of Professional Conduct. Is Tim still bound by the AICPA code even though he is no longer working in public accounting? Which sections of the IMA statement apply to this case? Pacific may or may not have established policies on resolving an ethical conflict.
2. Does anyone benefit personally if Amanda's request is met? Does this matter?
3. In considering the broad ethical issues, who is harmed by Amanda's plan?
4. Does it matter that this organization would both be in a better position to provide services to clients with Amanda's plan?
5. What should Tim do? What are his obligations to Pacific? To Pacific's clients? To the accounting profession?

Case Studies in Finance and Accounting

The Dolphin Bay Development: Optimum Strategy using Network Analysis

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Case Studies in Finance and Accounting

Abstract

This case study provides the opportunity to demonstrate the usefulness of network analysis in relieving bottlenecks and reducing levels of uncertainty in complex projects with interdependent events.

The Context

The regular visits of wild dolphins to the beaches of the far north-west of Western Australia, has made Dolphin Bay a tourist focus within the area. Up to now most tourists have stayed in a beach-side caravan and camping area which has a limited number of static chalets with basic amenities. The local Shire has repeatedly voiced concern over the environmental impact of such a development on the shore line — waterborne pollution would endanger the dolphin population, and therefore tourism.

The Shire has therefore determined to build a new development, nestling behind adjacent sand dunes, and to eliminate the possibility of future pollution (particularly sewage seepage) with the construction of a hard-core base. The existing development will eventually be phased out and the site rehabilitated, but this process will not start until completion dates have been firmly established on the new development and siteworks have commenced. The Shire planning authority has accepted final plans from Murchison Contractors, completed the formalities for rezoning the required parcel of land and identified ten distinct activities which need to be completed before the new development can commence trading:

- A. Site clearance and levelling.
- B. Surveying and drainage.
- C. Channels for pipework and foundations.
- D. Transportation of equipment and raw materials to the site.
- E. Marketing planning and demand targeting.
- F. Promotional activities for the new complex.
- G. Assembly of prefabricated buildings.
- H. Human resource planning based on local conditions.
- I. Recruitment and staffing of the new complex.
- J. Final inspection prior to handover.

The relationship between these activities and their relative ordering is represented in Figure 1. The Shire has set a target time for completion of 20 weeks and a budget of \$800,000. It will exact a penalty from the contractors of \$20,000 a week for overruns. Anything greater than a four-week overrun will not be tolerated, since this will throw bookings into total disarray and threaten the credibility and future viability of the site. The contractors will receive an 'early finish' bonus of \$25,000 a week for completion within the 20 week target.

The expected completion time and cost, together with the estimated variance for each of the activities, is detailed in Table 1. Also shown is the time that the contractors might save on each activity by 'crashing' (i.e., using overtime and shift working) together with the additional cost of such endeavours.

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Figure 1: Network of Activities in Dolphin Bay development

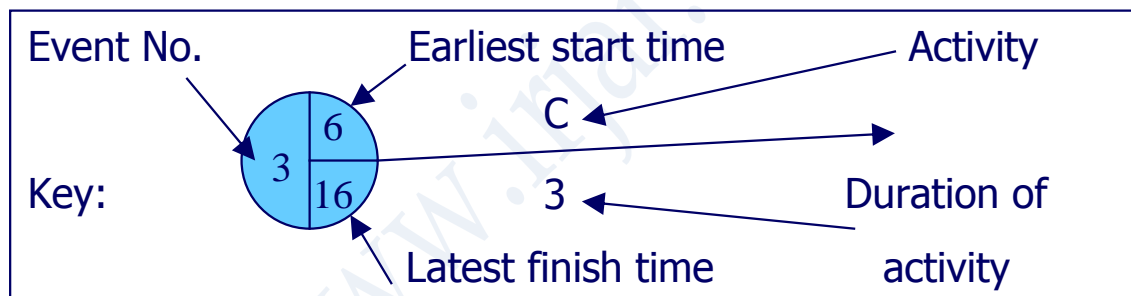
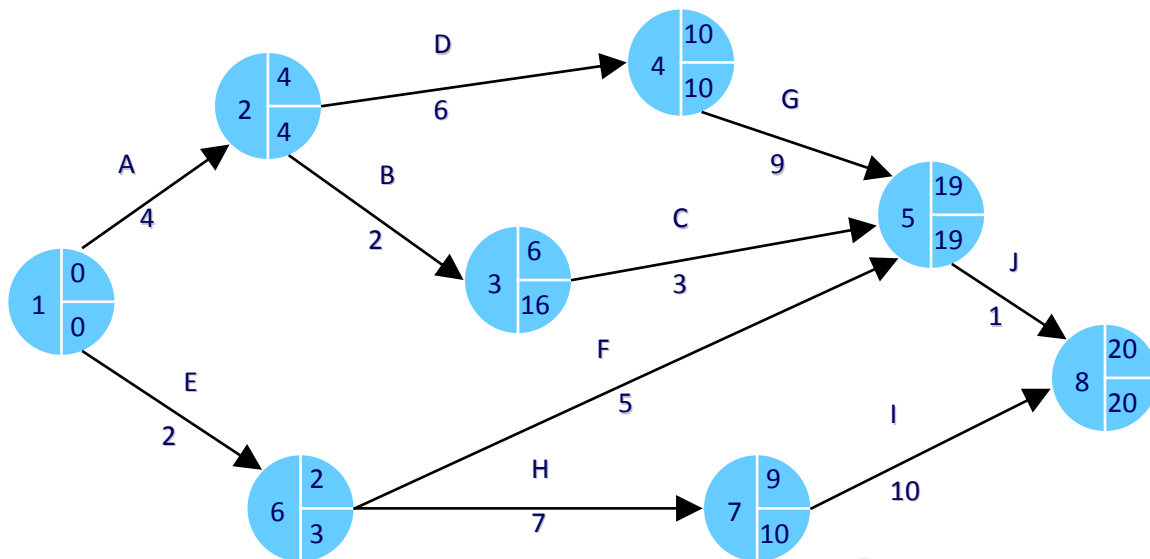


Table 1: Target Costs and Completion

Activity	Expected Time (Weeks)		Expected (\$000)	CostCrash Time	
	Normal	Variance		Weeks	Extra Cost (\$000)
A	4	1	50	3	20
B	2	1	30	2	0
C	3	1	40	2	20
D	6	2	90	4	25
E	2	1	20	1	20
F	5	1	120	4	10
G	9	5	200	7	25
H	7	8	70	5	30
I	10	16	140	7	40
J	1	1	40	1	0
			\$800,000		\$180,000

Case Studies in Finance and Accounting

You are required to examine the alternative approaches that the contractors might take in reaching a compromise between cost of contract and time to completion and to recommend an optimum strategy.

Teaching Note

The network of Figure 1, which establishes the sequencing of the activities, generates a critical path of A-D-G-J. For these activities, 'earliest start time' = 'latest finish time', and any possible reduction in the length of the project's duration will depend on the degree of variability of activities A, D, G, J.

The contractors earn a bonus of \$25,000 per week for finishing early, but incur a \$20,000 per week penalty for finishing late. An overrun in excess of 4 weeks is likely to result in expensive litigation.

The summary table of activities and durations, Table 1, details the maximum time reduction possible.

By "crashing" the activities on the critical path the project time can be reduced from:

$$\begin{array}{ccccccccccc} & A & & D & & G & & J & & & \\ & 4 & + & 6 & + & 9 & + & 1 & = & \underline{20 \text{ weeks}} \\ \text{to,} & 3 & + & 4 & + & 7 & + & 1 & = & \underline{15 \text{ weeks}} \end{array}$$

A 20-week duration has been budgeted for and incurs neither bonuses nor penalty costs. By examining the costs and benefits, associated with bonuses earned and costs incurred, the contractors can establish which activities it makes sense to crash.

However, a simple crashing of activities on the critical path (A, D, G only, since J cannot be crashed) will be insufficient. Changes in these durations will alter the position of the critical path (e.g. route A-E-H-I has a 19-day duration). We must, therefore, consider the optimum manner of reducing the project duration from between 1 and 5 weeks. In order to accomplish this calculation some assumption needs to be made about the divisibility of the crash time. (e.g. does the \$25,000 cost of saving 2 weeks in Activity G equivalent to a \$12,500 cost of saving only one week?). This is arguable, but a proportional costing resulting from divisibility has been adopted here.

Step 1: Specify alternative activity sequences and identify those with durations which exceed 15 weeks:

ABCGJ	10 weeks
AEFI	8 weeks
AEHI	19 weeks*

A-E-H-I and, the original, A-D-G-J are, therefore, the focus of attention. If the latter is to be cut to 15 weeks then so must the former.

Step 2: Identify those activities which can be "crashed" to save time:

A	from 4	to 3 weeks, saving 1 week
D	from 6	to 4 weeks, saving 2 weeks

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E	from	2	to	1 week, saving 1 week
G	from	9	to	7 weeks, saving 2 weeks
H	from	7	to	5 weeks, saving 2 weeks
I	from	10	to	7 weeks, saving 3 weeks

Step 3: Determine the optimum means of crashing activities in order to reduce project time to, respectively, 19, 18, 17, 16 and 15 weeks, and the corresponding benefits resulting (i.e., bonuses earned-costs incurred). The 'Cost Slope' is a useful intermediary in this process,

Where

$$\text{Cost Slope} = (\text{Crash Cost minus Normal Cost}) / (\text{Normal Time minus Crash Time})$$

We should "attack" those activities with the lowest cost slopes (e.g. here, activity D = $(115 - 90)/(6 - 4) = 12.5$) on those paths with the largest time reduction. Table 2 illustrates the iterative procedure.

Table 2: Project Crashing Strategy

Activity	Time Paths	Reduction		Cost Slope	Maximum Time Reduction (weeks)	Iterations					
		ADGJ	AEHI			1	2	3	4	5	6
A	1			20	1					X	
D	2			12.5	2	X	X				
G			1	20	1						X
H	2			12.5	2			X	X		
I			1	15	1					X	
			3	13.3	3		X	X	X		
Resultant Project Time (Weeks)						19	18	17	16	15	

Step 4: At Iteration 1 target Activity D -lowest cost slope (12.5) in longest path (ADGJ).

A one-week "crash" will reduce the total project length to 19 weeks.

Cost : \$12,500

Bonus : \$25,000 Net Benefit \$12,500

Step 5: Complete the 2 week "crash" possible on Activity D, cutting ADGJ to 18 weeks. AEHI is then the longest path (19 weeks) and Activity I has the lowest cost slope (13.3) in this path. At Iteration 2 crash Activity I for 3 weeks.

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A 1 week "crash" will reduce the total project length to 18 weeks.

Cost : D (\$25,000); I (\$13,300); Total: \$38,300

Bonus : \$50,000 Net Benefit \$11,700

Step 6: Complete the second week of the possible "crash" on Activity I, cutting AEHI to 17 weeks. ADGJ is then the longest path again (18 weeks) and Activity G is lowest cost slope (12.5). At iteration 3 "crash" Activity G. A 1 week "crash" will reduce the total project length to 17 weeks.

Cost : D (\$25,000); I (\$26,600); G (\$12,500); Total \$73,500

Bonus : \$75,000 Net Benefit \$1,500

Step 7: Complete the third week of the "crash" on Activity I and the second week of the "crash" on Activity G, making both path lengths 16 weeks at Iteration 4.

Cost : D (\$25,000); I (\$40,000); G (\$25,000); Total \$90,000

Bonus : \$100,000 Net Benefit \$10,000

Step 8: Activity H now has the lowest cost slope and crashing on this activity will reduce AEHI path to 15 weeks at Iteration 5. To reduce the total project length to 15 weeks also target Activity A in the ADGJ path for crashing.

Cost : D (\$25,000); I (\$40,000); G (\$25,000)

H (\$15,000); A (\$20,000) Total \$125,000

Benefit: \$125,000 Net Benefit \$0

The minimum project length has now been achieved so no further iterations are required. Iteration 6 and the crashing of Activity E are, therefore, unnecessary.

20 weeks	-	Bonus	\$0
19 weeks	-	Bonus	\$12,500
18 weeks	-	Bonus	\$11,700
17 weeks	-	Bonus	\$1,500
16 weeks	-	Bonus	\$10,000
15 weeks	-	Bonus	\$0

A summary of costs and benefits reveals that it is not in the contractor's interests to reduce the project length by more than 1 week. A 19 week project term is the only one which yields a positive bonus payment:

A one-week crash of either Activity D or Activity G will accomplish the required reduction at minimum cost and maximum bonus earning. However, this analysis ignores the variability of the project length, the expected project duration and the contractors' potential vulnerability to a penalty for a time overrun.

Table 1 provides the mean and variance of the anticipated completion time for each project activity. If we assume a normal distribution of project completion times we can quantify the risk of overruns. The level of acceptable risk will be a management decision, but it is unlikely that the contractors will countenance the possibility of an overrun exceeding four weeks.

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There will be a 5% chance of an activity taking an extra 1.645 standard deviations longer than the normal time. Where standard deviation = square root (variance) this additional time can be computed for each activity, as can the likelihood of a blow-out exceeding four weeks:

Activity	5% Bound	Probability of Blow-out >4 weeks
A	1.645 weeks	.000
B	1.645 weeks	.000
C	1.645 weeks	.000
D	2.326 weeks	.002
E	1.645 weeks	.000
F	1.645 weeks	.000
G	3.678 weeks	.036
H	4.652 weeks	.078
I	6.580 weeks	.159
J	1.645 weeks	.000

The focus is, once again, on those activities in the ADGJ and AEHI paths, and particularly on activities D, G, H and I which present the risk of a significant blow-out in costs.

If 19 weeks is the target completion time, then the additional risk attaching to activity G suggests that this activity should be the first to be crashed. However, this does not completely address the problem, since the risk associated with activity I is still, arguably, too high.

If activity G is crashed by one week, the issue of major concern is a blow-out of either H or I by in excess of five weeks, with probability of .038 and .105 respectively.

If the risk with respect to activity I is still judged to be too high, then it will necessitate a modification of the optimum bonus-earning strategy. Target completion times of 19, 18 and 16 weeks currently result in bonuses of \$12,500, \$11,700 and \$10,000 respectively. None of these alternatives involve a crash of activity H, but both of the latter cases include a crash of activity I - by one week (for \$11,700 option) and by three weeks (for \$10,000 option).

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Mercy Hospital: A Case Analysis

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Case Studies in Finance and Accounting

Abstract

This is a case study which describes an account (names, other facts changed to preserve anonymity) in which an internal auditor in a hospital setting, due to personal biases and a lack of objectivity, performed a substandard audit of a capital asset acquisition and violated several standards of the International Standards for the Professional Practice of Internal Auditing as well as the Institute of Internal Auditors (IIA) Code of Ethics. Students use the Standards and Code of Ethics to form conclusions regarding shortcomings of this audit. The International IIA Standards and Code of Ethics are online and easily read, with the Standards being twenty one pages in length and the Code of Ethics being two pages. The case is designed to be taught in one class period. Students are exposed to actual standards and required to employ the standards in their analysis of the case.

Case Description

This is a case study involving internal auditing in a hospital setting. It describes an account (names, other facts changed to preserve anonymity) in which an internal auditor, due to personal biases and a lack of objectivity, performed a substandard audit of a capital asset acquisition and violated several standards of the International Standards for the Professional Practice of Internal Auditing as well as the Institute of Internal Auditors (IIA) Code of Ethics. Students make use of the International Standards and Code of Ethics to form conclusions regarding shortcomings of this audit. It is designed to be taught in one class period, with students taking time outside of the classroom to read the Standards and Code of Ethics as a basis for analyzing the information presented. The most recent version of the International Standards for the Professional Practice of Internal Auditing (The Institute of Internal Auditors, 2010) as well as the most recent version of the IIA Code of Ethics (The Institute of Internal Auditors, 2009) are easily read in one evening, with the Standards being twenty one pages in length and the most recent Code of Ethics being two pages. Students are exposed to actual standards and required to employ the standards their analysis of the case.

Mercy Hospital - Background

Mercy Hospital is a leading health-care provider and one of the oldest hospitals in the region. The 300-bed, acute-care facility is known for its quality of care and respected for their expertise and innovation in the delivery of health care. As a leader in cardiac, trauma, surgical, orthopedic, neurologic, vascular and cancer care, Mercy Hospital offers patients the latest treatments by providing its medical staff, comprising more than 600 physicians, with the most advanced technology available. Mercy Hospital is one of eight individual hospitals comprising a hospital network located across seven states ranging from Pennsylvania to Mississippi. The eight hospitals have a network headquarters which provides many of the financial functions including internal audit services. Collectively, the hospitals are members of the Mercy Health Network. Management at each hospital is decentralized except all of the hospitals participate in a consortium to purchase medical supplies for a more competitive price than otherwise would be available.

64-Slice CT Scanner

The 64-Slice CT Scanner is a new imaging medical device that helps physicians diagnose and treat a variety of medical conditions by providing a more anatomically detailed image of the patient's organs. Older CT scanners have been used for years to study internal organs, bones, soft tissue and blood vessels. They are particularly useful in trauma situations to identify injuries to the heart and vessels, liver, kidneys or other internal organs. The scanner is also used to plan for surgery and monitor the treatment of tumors for cancer patients.

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Heart related maladies are all too common. The United States Center for Health and Human Services reported that in the USA for the years 2007-2008, over 5 million people arrived in emergency rooms complaining of chest pain (United States National Center for Health Statistics, 2010, p. 2). The new 64-Slice CT Scanner is judged to be faster and more reliable for diagnosing chest pain. It can evaluate a heart patient by capturing thousands of images of the heart in less than 5 seconds or capture images of the whole body in less than 30 seconds. The cost of these machines is generally expected to range from \$1.5 to \$2 million.

Bidding on the 64-Slice CT Scanner can be a very competitive and costly commitment by vendors. They insist that Board approval be granted for the machine before final bids are submitted. The list price and other costs associated with the CT scanner are shown in Table 1.

Refer Table 1

The Audit Process

Mercy Hospital's capital-asset procurement process for any single acquisition over \$100,000 is to have a formal proposal submitted to the board of directors (BOD) who vote on its approval. If the proposal is approved, the funds are transferred to the respective hospital for eventual disbursement. The internal auditors are charged with following up within one year of acquisition to check the propriety of the purchase and disbursal of funds. Recently, a proposal for a new CT scanner was submitted by Mercy Hospital's controller. The other hospitals were told to "wait and see" until the internal auditors could inspect the documentation of the acquisition and the operating effectiveness and efficiency of the new process before being allowed to submit their own proposals. Mercy's proposal was the one of the larger proposals submitted over the past several years at a total of \$1.625 million dollars plus approximately \$25,000 for the labor and other necessary expenditures to remove the old equipment to permit the installation of the new scanner. The cost of the new scanner by itself was listed in the proposal at \$1.3 million.

The internal auditor assigned to the acquisition was Jack Jones. Jack had been with the network for over three years performing mostly operational audits (on existing processes), reviewing internal controls, and payroll and travel expenses. Jack believed that the procedures associated with this capital-asset audit would be simple and routine.

This was not Jack's first visit to Mercy Hospital. In fact, Jack had performed an audit on the hospital's payroll and travel expenditures only a year ago. Jack's recollection of the experience was not a pleasant one. He had several "confrontations" with the controller, mostly as a result of clashing personalities. While all the expense issues were easily resolved, Jack felt there was still an adversarial relationship between them and he was "on guard" for any "preemptive strikes" this time around.

It was a long drive to Mercy Hospital so when Jack arrived a little late the day of his audit he was greeted by the controller with a perceived air of indifference and promptly led to a secluded and windowless office room. The controller calmly explained that he was extremely busy and would answer any questions at the end of the day. Jack merely nodded his head and sat down in front of several tall piles of invoices that the controller had furnished and represented the documentation supporting the purchase, set up, and testing of this new technology. Jack was somewhat surprised, fully expecting to see only a handful of invoices, but did not ask for any explanations. As Jack began looking through the myriad of statements and canceled checks he soon found one particular invoice near the top of the first pile which indicated that the actual price paid for just the machine itself was only \$902,000!

Jack's first reaction was to call the director of auditing. When he found that the director was

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out for the day and could not be reached, he decided to call the VP of Operations at corporate headquarters. Jack was critical of the controller in describing the seriousness of his suspicions based on this preliminary information. Jack didn't realize that there was a scheduled BOD's meeting that day and that the news would be passed on to the Board. The Board members were outraged over the alleged misuse of the funds and possible fraud.

Jack was unaware that the controller was soon being lambasted by the chair of the BODs in a private conference call. Seconds after the call, the controller walked up to Jack and had only two words to say—"Get out." Jack was flabbergasted; he called back to Network's Home Office only to receive a rather icy response from the Chair of the BOD's secretary suggesting that he return immediately. As Jack got into his car and drove back to the home office he wondered what he had done so wrong.

Postscript

Three days later Jack was called in to the director of internal audit's office. The director told the story of how he personally visited Mercy Hospital the next day after Jack's visit and performed the capital-asset audit himself. The director found that there were a number of reasonable explanations for the differences in the original proposal and the actual expenditure. To begin with, the companies who sold the machine would not talk about discounting the price until they knew that the funds were available. Once the proposal was approved and the funds were authorized for disbursement, only then did the competing vendors begin slashing their prices because of competition for the sale. This is what drove the cost of the machine down from \$1,300,000 to \$902,000. Other accessories and services provided by the vendor reduced the initial list price even further by some \$57,000. Training and warranty costs were not subject to discounting. However, there were several factors that mitigated some of these savings.

A more accurate summary of the sale price was provided without the renovation and additional hospital personnel costs, and other outside consultants that proved necessary to fully comply with all safety and documentation requirements is shown in Table 2.

Refer Table 2

It would take close to a month before the new machine became operational because no one really knew how difficult it was going to be to remove the old machine which had been embedded in the concrete floor (to minimize vibration). It was decided that to save time and costs, the new machine would be set up in a new room adjacent to the room for the older scanner. The new space would have to be renovated and new electrical connections installed.

Since the hospital could not afford to shut down for any extended length of time, the new space had to be renovated before the older machine could be dismantled. Then, while the new equipment was being tested, the old scanner had to be kept running in its temporary location. During the time that both machines were running, machine operators and supporting personnel were asked to work double shifts in order to test and become familiar with the new scanner before closing down the old machine. This took longer than expected because Mercy's technicians were not familiar with the new machine and had some difficulty with even minor start-up problems. Therefore, for the first two weeks, special outside consultants were hired to operate the scanner at the proper specifications. These additional and unexpected outlays were costly and brought the total to just under \$1.4 million (\$1.17 million and \$230,000 for the renovations and other expenditures) which was still lower than the original estimate of \$1.65 million. Even though the list price came in at a reasonable \$902,000 (saving \$398,000 and other discounts provided additional savings of \$57,000), the renovations amounted to \$230,000 and exceeded the original estimated renovation costs of

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\$25,000. The director went on to explain to Jack that the reason for the abnormally large number of invoices was due to the renovation cost, additional labor cost associated with the new machine, and the cost of running both machines during the transition. As it turns out, Mercy's controller actually did a commendable job in overseeing the project and keeping accurate records of the disbursements. In fact, the controller created a specialized installation guide that will probably save hundreds of thousands of dollars when the remaining hospitals install more of these machines. When the director was finished, he told Jack that unless he changed his attitude and re-considered what it means to be a professional internal auditor, he was likely to remain a payroll auditor for the rest of his career. The director told Jack to go back and read a basic internal audit text on interviewing techniques, the Code of Ethics and the Standards for Professional Practice. Jack still didn't understand. What was the director trying to say?

Required

1. Discuss the possible violations Jack may have committed according to the Institute of Internal Auditors (IIA) International Standards for the Professional Practice of Internal Auditing and Code of Ethics.
2. Comment on Jack's interviewing techniques. What could Jack have done differently? What did Jack forget to do?

How to Present the Case

Students should be asked to read the case and discuss or research the required question(s). Refer them to the Institute of Internal Auditors website and the Standards and Code of Ethics. Ask students to refer to the Standards and Code in answering the first case question. With regard to the second question, refer students to an internal auditing textbook to research audit interview techniques and goals.

Table 1: List Price and Ancillary Costs of 64-Slice CT Scanner

Qty	Description	Warranty Period	List Price
1	64 Fast Whole Body CT Scanner		\$1,300,000
	64 Long Couch		
	CT Accessory Kit, Console		
	Media for DVD-Ram Drive, Cable 5EE		
	Floor Epoxy Kit		
1	PGP Study Split, Worklist Mgt Specs		\$15,000
1	Gating/Fast Rotation- Cardio and Monitor		\$100,000
1	C100 Station & Software Package		\$145,000
1	Voltage Regulator		\$20,000
1	Universal Power Supply		\$10,000
	Rigging/Installation		\$21,000
	Shipping		\$14,000
	Capital Acquisition Costs		\$1,625,000

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CT-Course for TechBioMed Training		\$20,000
Warranty coverage-13 hour day	12	\$5,000
Additional 6 months	6	\$60,000
SiteTraining and Warranty Costs		\$85,000
Hospital Price	18	\$1,710,000

Table 2: CT-Scanner and Ancillary Cost, Original List Price and Updated Bid Price

Qty	Description	Warranty Period	List Price	Bid Price
1	64 Fast Whole Body CT Scanner		\$1,300,000	\$902,000
	64 Long Couch			
	CT Accessory Kit, Console			
	Media for DVD-Ram Drive, Cable 5EE			
	Floor Epoxy Kit			
1	PGP Study Split, Worklist Mgt Specs		\$15,000	\$10,000
1	Gating/Fast Rotation- Cardio and Monitor		\$100,000	\$90,000
1	C100 Station & Software Package		\$145,000	\$103,000
1	Voltage Regulator		\$20,000	\$20,000
1	Universal Power Supply		\$10,000	\$10,000
	Rigging/Installation		\$21,000	\$21,000
	Shipping		\$14,000	\$14,000
	Capital Acquisition Costs		\$1,625,000	\$1,170,000
	CT-Course for TechBioMed Training		\$20,000	\$20,000
	Warranty coverage-13 hour day	12	\$5,000	\$5,000
	Additional 6 months	6	\$60,000	\$60,000
	SiteTraining and Warranty Costs		\$85,000	\$85,000
	Hospital Price	18	\$1,710,000	\$1,255,000
	Note* PO must be received no later than 60 days from the bid date (modified amounts from year 2008)			

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Case Studies in Finance and Accounting

Privatization: Chicago Parking Meters, LLC

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Abstract

In late 2008 a Morgan Stanley consortium submitted the winning bid for a 75 year concession on the revenues from Chicago's 36,000 parking meters. The sale of the parking concession was motivated by Chicago's need for money to close a budget gap. Privatization of Chicago's parking did not please everyone. Alderman Scott Waguespack calculated that the city was giving up \$4 to \$5 billion in projected revenues. Just what the future revenues would be and what discount rate to apply to them to calculate their present value were contentious issues. The analysis requires calculating gains to the winning bidder and second guessing Mayor Daly's decision to make the sale.

Prologue

On December 2, 2008 Chicago Mayor Richard Daley announced the winning bid in the second round of bidding for a 75 year concession for the revenues from Chicago's 36,000 parking meters. Morgan Stanley's consortium won with a bid \$1.156 billion. The deal holds the concessionaire responsible for upgrading the antiquated one meter one space parking with state of the art pay stations that accept credit and debit cards as well as coins and bills. Each pay station will monitor six or seven parking spaces by 2011 which could also mean more parking spaces per block. In the midst of a budget crisis, the city gets a onetime payment that Daley promises to partially invest in an annuity to cover losses of parking meter revenue. Parking meters will also be upgraded at a cost to Morgan Stanley and its partners of \$10 million per year for three years. An equal number of meters will be installed each of the three years of the upgrade and each subsequent upgrade.

Meters will be replaced by pay stations, an upgrade that has been too costly under Chicago's budget constraints. Coin operated meters partially explain why parking rates went unchanged for twenty years. Raising the rates would mean more coins, filling meter banks more quickly and jamming the mechanism unless the city hired more unionized meter collectors. The concessionaire, in exchange for over a billion dollars and the promised upgrade, gets to raise parking rates according to a schedule of substantial hikes through 2013 after which further increases are limited to inflation. In projecting the value of the deal, inflation is estimated to be 3% by the various analysts modeling the value of the concession. Is this a good deal for Morgan Stanley, holder of 50.1% of the concession and its two partners, Germany's Allianz Capital (25%) and Abu Dhabi Investment Authority (24.9%)? Some Chicagoans are outraged and think it was a revenue giveaway. It didn't help those with suspicions that the fix was in that the new spokesperson for Chicago Parking Meters (CPM), Avis Lavelle, was a former aide to Mayor Daley.

Privatization Debate

Privatization advocates assume market efficiency will drive down the cost of government services. In order for market efficiency to be effective there have to be a large number of potential bidders. Very large contracts frequently have few bidders and they are often national companies. These bidders may realize economies of scale unavailable to governments.

In difficult economic times when tax increases are politically impossible and economically unwise even as budgets are squeezed, governments have been turning to selling off income producing assets. By August 2010, there were thirty-five privatization deals in various stages of agreement with an aggregate worth of over \$45 billion. "There's probably \$100 billion in domestic capital alone that's being raised to invest in these transactions, and when that's leveraged with debt, you're probably looking at up to \$400 billion in money that's ready to

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go to work,” says Dana Levenson, Chicago’s former chief financial officer and now an investment banker at Royal Bank of Scotland.

Chicago is not new to privatizing public assets. Not everyone sees such sales as the solution to red ink. Moody’s, a major bond rating agency, is not sanguine about the efficacy of asset sales: “We view these asset sales as 1-shots ...that create structural budget imbalances in future years, but that may be necessary actions to bridge the time gap until revenue stabilization or growth returns,” says Robert Kurtter, a managing director at Moody’s. Elliot Sclar author of *You Don’t Always Get What You Pay For: The Economics of Privatization* doesn’t see privatization as much of a fix either; “At some point, you’re going to run out of things to sell. And it’s not a long-term solution. It’ll get you through the next election cycle, and that’s all it does.”

After the Revolutionary War private investors built a 66-mile toll road, Philadelphia-Lancaster Turnpike for \$465,000. The first half of 19th century saw 600 toll roads constructed. The second half of 19th century saw further construction with 100 toll roads in California alone. The toll road building boom ended with the advent of the automobile and stricter government safety regulations making construction unprofitable for private interests in the US. Private money was still welcome elsewhere. France passed legislation in 1955 that led to 3,400 miles of toll roads.

Between 1820 and 1899 New York City went back and forth between public and Private Street cleaning. Public Street cleaning kept the streets clean but was expensive. Privatized cleaning was less expensive but the streets were dirty. Each time cleaning was deemed too expensive, city councillors would want to try again to write the perfect contract. No one ever found a way to write that perfect contract. In 1892 Chicago concluded that “there are few if any redeeming qualities attached to the contract system.”

The US Department of Transportation estimates that worldwide there have been 1,100 public-private deals in the last twenty years for over \$360 billion. Privatization in the US has lagged. Tax fee financing i.e., municipal bonds, is available, in the US but not in other countries prompting US states and municipalities to borrow and build. More recently, maintenance of infrastructure has taken a back seat to other rising expenditures such as Medicaid, education and pensions. Privatization while appearing to be selling out to some also offers a solution to decaying US infrastructure. Once in private hands, investors may be more likely to maintain assets than when they are public goods vying for limited public funds.

Facing fiscal constraints, Indiana’s governor Mitch Daniels auctioned off the 157 mile Indiana Toll Road for \$3.8 billion in a 75 year leasing deal. Mayor Daly took notice and in turn auctioned off the Chicago Skyway, the Illinois road that leads to Indiana, for \$1.8 billion on a 99 year lease to Cintra Concesiones de Transporte (Spanish) and Macquarie Infrastructure Group (Australian).

Investors have been willing to pay high prices for government income generating assets. In part this derives from more optimistic private analysts’ projections. The consortium that won the Chicago Skyway concession estimated 3% annual revenue growth while Chicago saw only 1% annual growth. That 2% difference led to a private valuation of \$3.8 billion which made the \$1.8 billion price a steal. Motivated to make their projections a reality, within three months of concluding the deal, electronic toll collection was installed along with additional toll booths reducing wait times and increasing traffic flow.

Privatization opponents fear asset sales will lead to price hikes and even price gouging. Concession agreements strictures typically place limitations on increases though there may be

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initial increases such as those built into the CPM deal. With private dollars at risk there is also incentive to increase traffic and reduce downtime by running operations efficiently since most toll roads or parking meters have alternatives.

The alternative to privatization is taxes. Public opinion seems to tilt toward privatization and tolls versus gas taxes with 52% favoring tolls and only 21% higher fuel taxes for road construction according to an American Automobile Association survey.

Use of proceeds from privatization is a major issue. Short term use of the money has been criticized, e.g., money to help the elderly pay current heating bills. Longer term use has also come under criticism when it has been used to fund public pension funds. Some opponents want the money raised from privatization dedicated to specific uses such as toll road money used to improve transportation for example. Selling assets may also distract from or postpone the need for public fiscal restraint.

What's the CPM Concession Worth?

According to Scott Waguespack, Alderman from Chicago's 32nd Ward, Morgan got too of good a deal. He was one of just five of the fifty Aldermen on the City Council who opposed the parking meter concession sale. His December 3, 2008 analysis showed the city was giving up \$4 to \$5 billion in projected revenue. Cash flows from the perspective of the city exclude taxes and obviate depreciation. EBITDA is effectively cash flow for a municipality as long as capital expenditures are subtracted out when they occur. While Alderman Waguespack did subtract the initial \$10 million per year to upgrade antiquated parking meter to pay stations in 2009-2011, he left out any subsequent upgrades. The parking stations' manufacturer estimates they have a life of seven years. Even with maintenance to extend their lives, the pay stations would need replacement every ten years beginning in 2019 with costs stretched out across three years in each case as with the first upgrade. Of course, each successive upgrade would also cost more under a 3% assumed annual inflation rate.

Waguespack's analysis of revenue from the meters follows the city's assumptions (Table 2) which is a rough estimate at best but a good basis for comparing valuation from the city's perspective versus a private buyer. The parking meters are located in six zones with different rates. To calculate the revenue for 2008 from each zone first the cost of one hour of parking is multiplied by the meters employed then the total is summed and the percentage of this revenue by zone is calculated. For example, zone 6 generated 36.8% of 2008 parking revenue. A total of \$23.8 million system wide was generated in 2008 which translates into \$8.462 million in revenue for zone 6. Future revenues through 2013 can be calculated using rates by zones as shown in Table 1. Beyond 2013 further increases are limited to CPI, assumed to be 3%, by the concession agreement.

In 2008, after operating costs the city had income from meters of \$18.9 million exclusive of parking tickets. Compliance was at 75%. With the city's ten existing ticket writers motorists took more calculated risks. The city plans to add five more ticket writers which could bring compliance to 85% or higher. Under the concession agreement the city retains revenue from parking tickets. The concessionaire has the right to also issue tickets. The net effect of more tickets, besides a welcome addition to city revenue, will be to increase compliance.

Competition from off street parking is limited since it is considerably more expensive particularly for short term parking and free parking spaces are few. Higher parking rates could motivate greater use of public transportation at the expense of inconvenience for short trips that would be more time consuming. Waguespack assumes some impact from the major price increases with loss of revenue shown as an elasticity factor at the bottom of Table 2.

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Zone 6, the more outlying areas of Chicago, would see parking meter utilization decline to 70% from 2008 levels under this likely conservative assumption.

Determining an appropriate discount rate is an area of contention that depends on who is doing the analysis. Waugespack used a 3% discount rate, the same as the assumed inflation rate, and came up with a valuation billions greater than the Morgan Stanley consortium paid for the lease. He reasoned that the revenue flow was about as risky as a long-term US Treasury Bond. Considering Morgan Stanley's cost of debt capital (Table 3), Waugespack's discount rate may have been on the high side. Morgan Stanley however, indicated the lease purchase was financed with equity capital from investors in a private equity fund. On July 19, 2010 the CPM consortium floated a debt offering memorandum for \$500 million in ten year financing which was later withdrawn. The anticipated rating on the debt was BBB- which would mean an interest rate of 5.6%. Chicago currently has outstanding tax free municipal revenue bonds supported by lakefront parking with 2021 maturity that have a yield to maturity of 2.426%.

As a follow up to Waugespack's analysis, Chicago's Inspector General's office did its own study that was released in June of 2009. The IG estimated the value of the concession to be \$2.13 billion. On June 30, 2009, Blair & Company, the firm hired by the Mayor's Office to advise the city on the lease of the parking concession disputed the IG's analysis noting that the analysis used revenues and not free cash flow combined with a low discount rate and an underestimation of future capital expenditures. In their 2008 analysis, Blair & Company had come up with multiple scenarios using free cash flow, assigned probabilities to them and arrived at a valuation of \$650 million to \$1.2 billion to the prospective bidders. The IG used a discount rate of 7.06% which was categorized as a very low risk discount rate even though the report from which the rate was obtained specifically suggested parking revenue should be categorized as low risk with a discount rate of 8.26%. Blair argues for a risk premium of 5.5% to 9.5% ending up with discount rates ranging from 10% to 14%.

Since the parking meter approval many in media have condemned the lease as a giveaway. Some of these pundits simply added the 75 year stream of revenues to arrive at multi-billion dollar headlines while others came up with more conservative but still high differentials between value and the sale price.

Chicago's 2011 budget as proposed has a \$654.7 million deficit, 20% of total spending. In 2010 unpaid employee furloughs amounted to \$520 million to staunch the red ink. The proceeds from the meter sale helped in 2010 but they will be insufficient for 2011 since they are now down to the \$100s of millions.

Chicago's Aldermen under fire for the CPM sale have vowed to go slow on any further sales of city assets. The media reaction could inhibit other deals as well. The New Jersey Turnpike and the Pennsylvania Turnpike sales seem to be dead at least for the time being.

Any future asset sales will continue the valuation debate. Governments and private investors appear to be using different assumptions in coming up with valuation. Combine very real differences in analytical approaches with political agendas and valuations can vary a great deal.

Case Studies in Finance and Accounting

Blue Mountain State University- A Case Study. Selecting Socially Responsible Contractors for a New Building

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Abstract

In a setting based on an actual university, students are faced with difficulties associated with non-financial metrics, and with integrating financial and non-financial metrics to arrive at a decision. The setting is construction of a new business school building, which required selection of sub-contractors. Sub-contractors were chosen based upon both social responsibility and financial aspects. Social responsibility aspects were determined through use of a questionnaire, which was subsequently scored by Monitoring Committee members. The average score was then used as the measure of social responsibility. The case challenges students to evaluate the (flawed) algorithm for combining financial and social responsibility factors and to design a new system. This case illustrates an issue that arises in many settings where different qualitative and quantitative factors must be combined to make a decision.

Keywords: Social responsibility, performance evaluation, awarding building contracts, qualitative and quantitative performance measures

Background

In the fall of 20XX, the administration of Blue Mountain State University was confronted with a dilemma. The State's declining economy, coupled with the University's increasing national reputation had resulted in record number of applications for admittance. At the same time the University's facilities were becoming increasingly obsolete and inadequate. Further, the economic decline had resulted in the State's Governor and legislature agreeing to reduce the State's support for infrastructure replacement and expansion at its State Universities.

In a meeting with the University's President, Carolyn Beery, Dean of the University's School of Business, proposed a solution. She suggested that the University assess all students a building construction and maintenance fee. The President thought the idea had possibilities, but was reluctant to unilaterally impose a significant new fee. Dean Beery suggested that the administration sit down with the officers of the Student Government Association and discuss this issue.

During the meeting, the student representatives surprised the administration by agreeing that the University was in need of new buildings, particularly a new Business School, and that without their help, nothing would happen.

A special campus wide referendum was subsequently conducted and the student body voted in a capital fee, which was to be used for new building projects. The new business school was one of the first projects to receive this funding. The students' fees would be used to cover 35-40% of the eventual building cost.

The officers of the Student Government Association (SGA) realized that given the magnitude of their financial contribution, they could influence the way that buildings were designed and constructed on campus. They demanded that the SGA have a significant voice in the awarding of construction contracts and the administration agreed.

Corporate Social Responsibility

The following discussion occurred at the SGA meeting subsequent to the passage of the referendum.

Student Body President:

"We have an opportunity to encourage contractors to address and act on their responsibility to consider social and environmental concerns into their business operations and their interactions with local and state community."

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Student No. 1:

“That doesn’t make any sense. In my finance class the professor continually talks about the responsibility of management to maximize the value of the firm from the perspective of their shareholders. Doesn’t that mean that contractors will make bids that maximize their profits from the job that they bid on?”

Student No. 2

“What about management’s obligation to act ethically? Isn’t it important for the contractors to consider how their actions affect their employees, their customers, their suppliers, or the community at large? Doesn’t a firm have an obligation to act fairly and do the right thing even if it means lower profits?”

Student No. 3

“But doesn’t the contractor have to comply with laws and regulations? Isn’t it the role of government to decide what is appropriate behavior in business? Who says that a firm’s management can or should be making decision about what is best for society?”

Student Body President

“It seems to me that encouraging contractors to consider their social responsibilities is in the interests of their shareholders. Won’t customers like the University prefer to do business with firm’s that have reputation for be good citizens? Won’t the best employees want to work for the best firms?”

Student No. 2

“Shouldn’t the contractor be concerned about how their actions damage the environment, endanger the public by the use of poor materials and shoddy construction practices, and/or endanger or improperly treat their employees even if it reduces their profits?”

After a continued discussion, the students agreed to meet the following week. They decided to invite some faculty members and get their inputs. At the next meeting, the faculty presented several concepts of corporate social responsibility (See Exhibit 1). After a lively discussion, the group agreed on the following definition of social responsibility (SR):

Corporate Social Responsibility relates to the efforts corporations make above and beyond those required by laws and regulation to balance the needs of stakeholders with the need to make a profit.

After further discussion, the students identified the stakeholders as students, faculty, university administration, the community, the contractor, the subcontractors, and the construction workers.

Data Gathering on Subcontractor SR

Having settled upon a definition of corporate social responsibility, the student committee quickly agreed that promoting social responsibility among the subcontractors was important, even though it might result in higher building costs. The student’s discussion then turned to trying to identify the characteristics that distinguish a subcontractor that conducts itself in a socially responsible manner. They realized that they needed to take into consideration the different viewpoints of the stakeholders that they had identified earlier.

As the discussion took place, the secretary recorded and summarized on the whiteboard the ideas generated by the group. By the end of session it was clear that the attributes could be sorted into five major areas

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Major Areas of Social Responsibility

1. Relationships between the subcontractor and its employees.
2. The subcontractor's concern for the environment.
3. The subcontractor's efforts to be a "good" member of the local community
4. The relationship between the subcontractor and the University
5. The subcontractor's use of socially-responsible suppliers.

The students recognized that this list was too general and too large. It was agreed that the list of characteristics needed to be narrowed down and made more explicit.

During the next week the students talked to selected faculty, personnel from facilities management in the university with experience in construction and maintenance and the general contractor. The students decided that their primary concern in the evaluation of subcontractors should be the ability of the subcontractor to deal equitably and compassionately with its employees. A consensus emerged that socially responsible subcontractors should be concerned about employee interests such as health and safety programs for employees, employee training, union membership and a few other items.

The student representatives then meet with the President of University, the University Controller, the Dean of the Business School, and the Vice President for Facilities Management. It was agreed that in reviewing bids for the new Business School building, the social responsibility conduct of subcontractors (with an emphasis on responsibility to employees) would be an important element.

It was agreed that a University Contract Monitoring Committee (the UCMC) would be formed. This Committee consisted of six members: two representatives from the Student Government, two faculty members and two personnel from Facilities Management (the university department that oversees construction projects on campus).

In an effort to help control cost from the very beginning of the design process a General Contractor had been hired to manage both the design and the actual construction process of the new Business School. The General Contractor subsequently became the seventh member of the UCMC. The UCMC then assumed the responsibility for the selection of the subcontractors who would do the actual work.

The initial task of the UCMC was to finalize a questionnaire that would be used to collect information about the social responsible conduct of the subcontractors bidding on work. The initial version of this questionnaire drew heavily from the minutes of the student discussions on SR. In particular it asked questions about health and safety programs for employees, employee training, and union membership. The version of the questionnaire finally agreed upon by the Committee is included as Exhibit 2, and contains questions on the following major categories:

- A. Project team, staffing and transparency
- B. Project approach
- C. Project experience and prior performance
- D. Miscellaneous

This questionnaire was sent by the Committee to each potential subcontractor that wished to submit a bid for a given trade. The subcontractor filled out these forms with supporting documentation as they deemed appropriate. The completed forms and supporting

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documentation formed the basis for development of a score for social responsibility.

Contract Evaluation

After the questionnaires were developed, the UCMC met to consider how to analyze the information provided in the process of awarding the contract. The student representatives wanted to ensure that SR scores were given priority over the size of the bid submitted by the subcontractor. After some discussion it was agreed that a 100 point scale would be used to evaluate each bid. Sixty points of a subcontractor's score would be based on SR performance and forty points on the relative magnitude of the amount of the bid. The formal process was as follows:

1. Solicit bids from sub-contractors for a given trade.
2. When a bid is received, forward a "Subcontractor (SC) Evaluation Questionnaire" to the SC.
3. At this point a SC can opt out of the process by choosing not to respond.
4. UCMC members individually evaluate the returned questionnaires, using the "Qualifications of Contractors Scoring Sheet." Exhibit 3.
5. Average the scores from each UCMC member.
6. Compute the bidding cost score (max 40 points).
7. Add the qualitative social responsibility score (max 60 points) to the bid score.
8. Award the contract to the SC with the highest total score.

Rater Evaluation

The Social Responsibility rating system developed by the UCMC required each of its seven members to review the submission made by a subcontractor and assign a numerical score to each of the 12 attributes. Each member was required to assign a score between 0 (poor) and 5 (exceptional) to each of the attributes. Thus, a subcontractor could be awarded a maximum of 60 points (12 x 5) by any evaluator.

For the attributes with sub-parts (e.g., item 4 under Project Team, Staffing and Transparency), scores for each sub-part were averaged to compute the attribute's score. Accordingly, for the attribute "Apprenticeship and Training Program" the score would be the average of 4a, 4b, 4c and 4d.

The basis for assigning scores to each attribute was detailed on the questionnaire sent to each prospective subcontractor. This information was shown in boxed in area which followed the description of the information requested for each attribute and subpart.

For the bid costs, to encourage competitive bids, the lowest bidder was awarded the full 40 points. The points assigned to the other bids were based on the ratio of the low bid to that subcontractors bid: $(\text{Low Bid} / \text{Subcontractors Bid}) * 40$ points. Thus subcontractors submitting bids relatively similar to the low bidder, received a high bidding score.

Bids

The first set of bids was solicited for construction of the steel framework for the new building. Inquires were received from fifteen potential subcontractors, ten of whom requested the bidding package put together by the UCMC. Six subcontractors submitted completed bidding packages.

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Each of the seven members of the UCMC evaluated these six questionnaires. Table 1 summarizes the scoring for each of the four major categories for each subcontractor by each member of the UCMC. In the table, members of the Monitoring Committee are identified with the numbers 1-7. Potential sub-contractors are designated with letters A-F. Table 1 also provides the mean SR score for each contractor, along with the bid price.

The bids for the work ranged from high of \$511,734 to a low of \$241,650.

Subcontractors C and B submitted the lowest and second lowest bids. The averaged SR scores ranged from a high of 42 (out of 60) to a low of 26.86. Subcontractors F and E received the highest and second highest SR scores.

The bid price and the average across the SR scores awarded by the seven members of the UCMC were then combined to form the final recommendation. Subcontractor C with a total score of 75.46 (bid = 36.89, SR = 38.57) was awarded the contract. Table 2 reports a spreadsheet summary of the total scores and rankings of the six bidders.

Assignment Questions

1. Describe the project and process.
2. Discuss implications of including social responsibility in the criteria for sub-contractor selection.
3. Discuss characteristics of the questionnaire. What areas are covered? Are they “the right ones”? Are any missing? How subjective are the questions? Can the answers have multiple interpretations?
4. Evaluate the measurement system for the social responsibility score.
5. What are some issues associated with calculation of the total score?

Exhibit 1: Some Concepts of Social Responsibility

Corporate Social Responsibility:

“...the duty a corporation has to create wealth by using means that avoid harm to, protect, or enhance societal assets.” In Steiner, G., and J. Steiner, 2000 *Business, Government, and Society A Managerial Perspective* 9th ed. Irwin McGraw-Hill: 120.

“The idea that businesspeople should consider the social consequences of economic actions when making business decisions” from Hill, C., (2006). *Global Business Today*, 4th ed. McGraw Hill.

“a concept meaning companies take the initiative themselves to reflect social and environmental concerns within their activities and in their relationships with the various corporate stakeholders.” <http://www.eufin.org/glossary,en,41.html> Note: Eufin.org is partially financed by the European Commission,

“a corporation should be held accountable for any of its actions that affect people, their communities, and their environment.” (In Post). J., Lawrence, A., and J. Weber (2002). *Business and Society Corporate Strategy, Public Policy, Ethics*, 10th ed. McGraw-Hill Irwin

“Responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behavior that

- contributes to sustainable development, including health and the welfare of society;
- takes into account the expectations of stakeholders;

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- is in compliance with applicable law and consistent with international norms of behavior; and
- is integrated throughout the organization and practiced in its relationships”

Committee draft ISO/CD 26000 December 2008, International Standards Organization, p. 3.

http://isotc.iso.org/livelink/livelink/fetch/2000/2122/830949/3934883/3935837/ISO_CD_26000_Guidance_on_Social_Responsibility.pdf?nodeid=7795973&vernum=0

Exhibit 2: Subcontractor Evaluation Criteria

Questionnaire

A. Project Team, Staffing, Transparency

Provide an estimate of what % of work and type of services your company would typically subcontract for on a project of this size and scope. The Evaluation Team reserves the right to request additional information regarding these sub-subcontractors.

1. Provide an affirmation that employees have the right of self organization and the right to form, join or assist labor organizations, to bargain collectively through representatives of their own free choosing, and to engage in lawful concerted activities for the purpose of collective bargaining or other mutual aid or projection. Affirm that each employee has the right to refrain from any such activities.

Your signature at the bottom of this form will signify your affirmation of the above statement.

Key: Affirmation of the statement receives maximum points. Failure to affirm receives 0 points.

2. Describe the sources to be used for obtaining personnel and how they are inclusive of the member communities residing in state (i.e. Newspapers, word of mouth, union halls).

Key: Higher scores go to firms that show reliable access to a ready supply of skilled labor. Higher scores also go to firms that show active and ongoing participation with diverse communities and organizations that provide access to construction training for women and people of color.

3. Describe how you will ensure that at least 80% of the workers on the project will be residents of the State (examples might include checking driver's licenses, etc.).

Key: Higher scores go to firms that provide a mechanism or process that ensures documented state residency. Firms that simply assert that their workforce is comprised of 80% in-state residents receive lower scores.

4. For each craft in which you will directly hire craft workers, describe any job skills or apprentice training programs developed or maintained by your company or in which your company participates where employees receive knowledge about the crafts and skills.

Identify both classroom apprenticeship and training programs as well as any “on the job” instruction and describe the following that apply to your company:

- a. The types of training programs provided and identity of training providers and whether such programs are registered with and certified by the Bureau of Apprenticeship and Training, U.S. Department of Labor.

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Key: Higher scores go to BAT-certified training programs. Higher scores also go to training programs that teach a complete range of skills appropriate to the craft, and to programs that are already in existence.

Describe the qualifications, credentials and length of experience of the instructor(s) of the program.

Key: Higher scores go to training programs where instructors have longer experience and both skills licenses and teaching certifications. In addition, higher scores go to training programs that provide teaching certification and/or university coursework to instructors.

Include how these programs are incorporated into your project organization and staffing plan.

Key: Higher scores go to firms with greater integration of training programs into project work. Evidence of this includes higher journeyman-to-apprentice ratios (less apprentices to each training journeyman), and higher proportions of workers on site having either graduated or currently enrolled in the apprenticeship training program.

- b. The classroom hours and total hours required to complete both apprenticeship and job skills training programs and types of accreditations and/or certifications earned upon completion of the programs.

Key: Higher scores go to more extensive training programs with a greater proportion of classroom training, and that provide graduates with recognized accreditations and/or certifications.

- c. The annual dollar amount invested in such programs for the past 5 years and whether the program participants are required to pay any portion of the program costs.

Key: Higher scores go to training programs that show substantial financial investment by contractors and that minimize costs to enrollees

- d. Participation and graduation rates (expressed as a percentage of the total number of the enrollees in such programs over the previous 5 years).

Key: Higher scores go to training programs with both high participation and graduation rates, but with a greater stress on graduation rates. Firms with very high participation but very low graduation (or vice versa) may be marked down as evidence of training programs that are either ineffective or exclusive.

5. Please describe any employee healthcare coverage programs maintained by your company or in which your company participates where employees and/or their dependents receive hospitalization and medical benefits.

Please include:

- a. The types of benefits and coverage provided.

Key: Higher scores go to health care programs that offer comprehensive rather than limited or catastrophic care and that include family members as well as craft employees.

The employer and employee contributions to the cost of the plan

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Please provide contribution ratios for both individual employee coverage as well as any family/dependent coverage plan that is offered.

Key: Higher scores go to health care programs that have a higher ratio of employer-to-employee costs of enrollment.

Deductible amounts:

Key: Higher scores go to health care programs with lower deductibles.

- b. The percentage of employees covered by the plan.

Key: Higher scores go to health care programs that have higher rates of participation by craft employees.

And the percentage of employees, both full and part-time, for whom a plan is available.

Key: Higher scores go to health care programs that are available to a higher proportion of craft employees

- c. Whether the plan automatically provides employee coverage or is on a voluntary opt-in basis.

Key: Higher scores go to health care programs that provide automatic coverage of craft employees.

Whether employee dependents are covered and whether dependent participation is automatic or on a voluntary opt-in basis

Key: Higher scores go to health care programs that provide automatic dependant coverage for craft employees.

6. Outline your company's employee grievance and dispute resolution process and procedures and who bears the costs. Include steps and actors involved in the process.

Key: Higher scores go to firms with evidence of fair and extensive dispute resolution processes. Evidence includes provisions for employee representation and access to third-party mediation or arbitration that is paid for by the employer.

B. Project Approach

1. Describe any of your environmental programs on project job sites that apply to your trade (such as use of recycled materials, indoor air quality capabilities, hazardous waste reduction, etc.).

Key: Higher scores go to firms with more comprehensive and innovative environmental programs.

2. Describe in detail the comprehensive safety program your company proposes to implement on the Project

Please Include:

- a. Any safety training or incident avoidance programs used by your company for management and craft personnel, including OSHA courses and standards, substance abuse programs, etc.

Key: Higher scores go to firms with systematic and regular safety training for all craft workers and new employees.

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- b. Provide a copy of any applicable written health and safety plan used by your company. Describe how the program is incorporated into your Project organization and overall staffing plan.

Key: Higher scores go to firms with mandatory rather than voluntary health and safety programs, and with greater integration of the health and safety plan into the project.

- c. Provide by year, the number of OSHA violations your company has received on projects during the past five (5) years. Describe the violation and provide the final results for each citation identified.

Key: Higher scores go to firms with fewer citations, but points may be added for evidence of vigorous and timely action taken to correct violations.

- d. Describe by year your company's workers compensation claims filed and the final result.

Provide your company's experience modification rating for the past three years:

2005: _____

2004: _____

2003: _____

Key: Higher scores go to firms with fewer claims and lower experience modification ratings (a rating below 1.0 is favorable, above 1.0 is problematic).

C. Project Experience/Past Performance

1. Provide a copy of your firm's resume and any additional information regarding your general and specialized experience and expertise and its relation to the prospective contract work.

Key: Adequate provision of this information receives maximum points, with points being deducted for missing information.

2. Provide a list of all projects completed in the past three (2) years that have a value of \$500,000 or more. For each project, provide the following data regarding the contract or subcontract work performed by your firm (if there were more than 10 projects, limit this list to the 10 most recent):

- Project Name
- Contact Information for Project Owner, General Contractor or AE
- The original bid or proposal price and final amount paid to your firm for the project; the original schedule completion date and final completion date.
- You may provide an explanation for budget growth or schedule growth, as you deem appropriate.

Key: Higher scores go to firms that show a better record of on-schedule and on-budget performance, but points may be restored for firms that can show that schedule delays or budget inflation were not the fault of the firm.

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D. Miscellaneous Considerations

1. Provide information for the last 5 years on any charges or violations of law and regulations, litigation, and claims (including pending and anticipated claims), Explain the issue and outcome or anticipated outcome.

Key: Higher scores go to firms with fewer charges, violations, and claims. Firms discovered to have failed to disclose such charges, violations, or claims receive zero points.

2. Other

This category is included for other items presented by the respondent. Inclusions may include standard firm promotional literature, testimonials, awards, corporate memberships in professional organizations or sponsorships, additional project/contract histories, etc.

Key: Points may be awarded to firms that show Minority Business Enterprise (MBE), Women's Business Enterprise (WBE), Disadvantaged Business Enterprise (DBE), or Small Business Enterprise (SBE) certification. Points may also be awarded for evidence of especially excellent qualifications, such as awards or unique certifications, or for additional employee benefits, such as pension plans. Awarding of these points may be discussed with others on the evaluation team.

Company Name: _____

Signature: _____ Date: _____

Exhibit 3: Qualifications of Contractors

Scoring Sheet

Name of Firm _____

Evaluator _____ Date _____

Scores should be awarded on a 0-5 (0 being the worst, 5 being the best) ranking scale in each qualification category. Scores within subcategories (e.g., 4a-4d) are averaged to provide a total of 5 points for each category. The sum of all scores constitutes 60% of the firm's final rating.

A. Project Team, Staffing, Transparency (PTST)

1. Self Organization Affirmation _____
2. Personnel Sources and Community Inclusion _____
3. 80% State Residency Assurance _____
4. Apprenticeship and Training Program
 - 4a. Program Qualifications & Project Integration _____
 - 4b. Length, Classroom Hours, & Accreditations _____
 - 4c. Investment in Program & Enrollee Costs _____
 - 4d. Program Participation and Graduation Rates _____
5. Health Care Program
 - 5a. Benefits, Family Coverage, Employee Costs _____

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- 5b. Plan Availability & Employee Participation _____
- 5c. Automatic vs. Opt-In Coverage _____
6. Employee Grievance & Dispute Resolution Process _____

B. Project Approach (Approach)

1. Environmental Program _____
2. Safety Program _____
- 2a. Training & Courses _____
- 2b. Written Plan & Project Integration _____
- 2c. OSHA Violations & Rectification _____
- 2d. Worker's Comp. & EMR Record _____

C. Project Experience/ Past Performance (PEPP)

1. Resume & Experience/Expertise _____
2. Project History & On-time/On-Budget Record _____

D. Miscellaneous Considerations (Misc)

1. Charges, Violations, & Litigation _____
2. Other Unique Qualifications & Considerations _____

TOTAL (max 60) _____

Table 1: Contractor Scores

Contractor A	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	13	7	7	5	32
Evaluator 2	5	3	3	0	11
Evaluator 3	12	6	6	4	28
Evaluator 4	12	8	3	8	27
Evaluator 5	11	6	6	6	30
Evaluator 6	11	5	7	7	30
Evaluator 7	14	7	7	9	37
Bid:	\$511,734			Average Score:	27.86

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Contractor B

	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	16	7	9	4	36
Evaluator 2	12	4	9	6	31
Evaluator 3	18	8	8	5	39
Evaluator 4	11	5	9	6	31
Evaluator 5	17	7	10	6	40
Evaluator 6	15	7	10	8	40
Evaluator 7	19	9	10	9	47
Bid:	\$346,084			Average Score:	37.71

^aNote: PTST = Project Team Staffing, Transparency, Approach = Project Approach, PEPP = Project Experience/Past Performance, Misc = Miscellaneous Considerations. See Table 1 for details.

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Table 1 Continued: Contractor Scores

Contractor C

	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	20	3	9	4	36
Evaluator 2	21	3	8	4	36
Evaluator 3	20	5	9	4	38
Evaluator 4	24	3	9	2	38
Evaluator 5	21	4	9	5	39
Evaluator 6	22	5	8	4	39
Evaluator 7	22	8	8	8	46
Bid:	\$262,047		Average Score:		38.86

Contractor D

	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	17	4	8	3	32
Evaluator 2	14	5	6	0	25
Evaluator 3	18	6	8	4	36
Evaluator 4	15	0	5	6	26
Evaluator 5	17	5	7	2	31
Evaluator 6	15	5	8	3	31
Evaluator 7	26	7	10	6	49
Bid:	\$241,650		Average Score:		32.86

^aNote: PTST = Project Team Staffing, Transparency, Approach = Project Approach, PEPP = Project Experience/Past Performance, Misc = Miscellaneous Considerations. See Table 1 for details.

Contractor E

	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	21	7	8	4	40
Evaluator 2	22	6	8	2	38
Evaluator 3	22	8	8	4	42
Evaluator 4	21	2	8	2	38
Evaluator 5	23	8	9	4	43
Evaluator 6	21	9	10	3	43
Evaluator 7	20	9	8	7	44
Bid:	\$361,783		Average Score:		41.14

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Contractor F

	PTST ^a	Approach	PEPP	Misc	Total Score
Points Available:	30	10	10	10	60
Scores:					
Evaluator 1	23	8	8	7	46
Evaluator 2	16	8	8	10	42
Evaluator 3	21	8	6	8	43
Evaluator 4	17	10	7	8	42
Evaluator 5	17	8	6	6	37
Evaluator 6	16	8	7	6	37
Evaluator 7	24	7	8	8	47
Bid:	\$326,316			Average Score:	42.00

ote: PTST = Project Team Staffing, Transparency, Approach = Project Approach, PEPP = Project Experience/Past Performance, Misc = Miscellaneous Considerations. See Table 1 for details.

Table 2: Scoring Process Results

Subcontractor	Bid	% of Low Bid	Bid Score	Rank Bid	SR Score	SR Rank	Total Score	Total Rank
A	\$511,734	47.2	18.89	6	26.86	6	45.75	6
B	346,084	69.8	27.93	4	37.71	4	65.64	5
C	262,047	92.2	36.89	2	38.57	3	75.46	1
D	241,650	100	40.00	1	32.57	5	72.57	2
E	361,783	66.8	26.72	5	41.14	2	67.86	4
F	326,316	74.1	29.62	3	42.00	1	71.62	3

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Omega Tech Case: Putting it all together

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Abstract

Intermediate accounting students often have difficulty “connecting the dots” with the large amount of technical information covered in class, which is traditionally taught as separate topics. This case attempts to assist students to recognize the interconnectedness of capital leases, defined benefit pension plans, deferred taxes, fixed asset transactions, and cash flows through the correction of errors, and preparation of financial statements. Students are also required to prepare disclosures relating to the transactions.

Introduction

You have been hired as the controller for Omega Tech, Inc., and are preparing for your first year-end. The fiscal year is ending this week, and you are involved in the year-end closing and preparation of the financial statements. You are excited about your new job, and you want to impress your supervisors.

Omega Tech has previously relied on its accounting firm, Frank and Candid, to prepare their financial statements. The company has experienced rapid growth and has decided to hire a controller. The accounting department consists of you and a bookkeeper, Ana Stays. Ana is very capable at handling the day-to-day activities, but doesn't understand some of the finer points of GAAP.

The following sections summarize background information on the Company, major transactions during the past year, and current economic conditions.

Company Background

A group of MBA students formed Omega Tech (the Company) after graduation in 1998. The Company designs and installs home technology applications. Although the Company has not been profitable in the past, this year it has reached a turning point as the profits from past R & D expenditures are being realized in product innovations and in increased sales. To further ensure its success, the Company has embarked on a focused effort to control costs. As the result of these efforts, the Company expects to recognize its first profit in 2012. However, the Company's ultimate success depends on whether it will continue to be profitable over the next few years.

The Company's strength is its management, research and development, and production employees. The average employee is 35 years old, educated, and dedicated. Starting salaries are above average (although salary increases are close to average), morale is strong, and the Company has experienced little turnover. In addition to good salaries and healthcare benefits, all employees are covered by a defined benefit pension plan. The pension plan provides retirement benefits based on the employees' pre-retirement salary levels and years of service with the firm. The Company amortizes any unrecognized prior service costs and gains/losses using the straight-line method over the average remaining service life.

The future outlook for the Company has improved, but it is still uncertain. Analysts are bullish on the Company and have rated its common stock as a buy. The current market price of the Company's common stock is \$4.25 per share, and the 2011 average price was \$3.65 per share. At the beginning of the current year, the Company had accumulated net operating loss carry-forwards totaling \$230 thousand that will begin to expire in ten years. Based on the Company's analysis, management determine that it was “more likely than not” all of the deferred tax asset would be realized in 2012; therefore, the deferred tax asset related to the NOL was classified on December 31, 2011 as current. Deferred tax information for January 1, 2012 is given in Exhibit 3.

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Major transactions during the past year

During the past year, the Company was a party to a number of major transactions that impacted the financial statements. These transactions are discussed in the following paragraphs.

Pension Plan

The Company contributes to a defined benefit plan for its salaried employees. Benefits are determined based on years of service and earnings. The Company adopted SFAS no. 158 in 2007, and at the beginning of 2012 amended the plan by increasing the benefits formula, although they did not fund the increased liability of \$280,000 at that time. When The Company funded the pension for the year, on December 31, Ana prepared the following entry:

Pension expense	200,000
Cash	200,000

Pension information is given in Exhibit 2

Leases

The Company entered into two lease agreements during the year:

1. A ten-year lease (Jan 2, 2012-Jan 1, 2022) for the use of a high-speed assembly line at its main production facility with General Capital. The lease requires annual payments of \$30,000 beginning on January 2, 2012. The lease does not contain a bargain purchase option or transfer title at the end of the lease term, but does include a guaranteed residual value of \$20 thousand. The Company estimated the useful life of the assembly line to be twelve years. The Company is unaware of General Capital's implicit interest rate and used a 10 percent interest rate in its lease analysis. Amortization of the capitalized lease asset for financial statement and tax purposes is the same.

Ana has made the following entry to record the lease payment:

Lease expense	30,000
Cash	30,000

2. A five-year lease (April 1, 2012-March 31, 2017) for the use of a building. The lease requires annual payments of \$45,000 starting on April 1, 2012. The lease does not contain a bargain purchase option or transfer title at the end of the lease term, but includes an unguaranteed residual value of \$60,000 at the end of the lease. The interest rate implicit in the lease is 12%, which approximates The Company's incremental borrowing rate. The fair value of the building on April 1, 2012 was \$213,200. The expected economic life of the building is 30 years. Ana recorded the lease payment as follows:

Lease expense	45,000
Cash	45,000

Construction Project

The Company commenced construction of a new office building on January 1, 2011. The project is expected to be completed in three years. During 2012 the Company incurred construction expenditures of \$360,000 on March 1; \$600,000 on June 1; \$1,500,000 on July 1;

Case Studies in Finance and Accounting

and \$1,260,000 on December 1. To help finance the construction, the Company borrowed \$1,200,000 at 12% on January 1, 2011, using the constructed asset as collateral for the loan. In addition, The Company had the following borrowings:

Long-term note:	\$600,000 at 10% (borrowed on 12/31/10)
Bonds payable	\$3,000,000 at 11% (issued at a discount of \$169,517 on 12/31/2008 to effect 12% interest)
Mortgage payable	\$3,200,000 at 6% (borrowed on Jan 1, 2012)

Operational Assets

The Company, upon reviewing expenses for gasoline, decided their service calls to customers could be handled with a van, rather the truck they had been using. They located a van and exchanged their truck for the van, and received \$6,000 cash in the exchange. At the time of the exchange, after updating depreciation expense, the truck was on the balance sheet at its original cost of \$55,000, with \$12,000 of accumulated depreciation. Kelley Blue Book estimate for the value of the truck on the date of the exchange was \$48,000.

Ana recorded the exchange, which occurred on Oct 31, as follows:

Van	37,000
Cash	6,000
Accum depr-truck	12,000
Truck	55,000

Also, on May 1, The Company purchased land, a building and equipment from a bankrupt firm, paying \$330,000. In order to determine the values of the assets, the company hired an appraiser, and paid her \$6,000. The appraised values were as follows:

Building	\$175,000
Land	75,000
Equipment	150,000

The purchase was recorded as follows:

Miscellaneous expense	6,000
Building	175,000
Land	75,000
Equipment	150,000
Cash	336,000
Gain	70,000

Ana has not recorded depreciation expense on the assets acquired through either transaction.

Other transactions:

At the beginning of 2012, The Company had 539,000 shares of common stock outstanding. An additional 38,500 shares were issued on January 1, 2012.

Case Studies in Finance and Accounting

Required

1. Review the preliminary financial statements and supporting data for Omega Tech. Prepare the journal entries and update the preliminary statements (round all percentages two decimal places).
2. Submit the completed financial statements, including comparative Balance Sheets for 2011 and 2012; an Income Statement for 2012; and a Statement of Cash Flows for 2012. Include journal entries used in adjusting the preliminary statements, and provide all schedules used in calculations. Prepare the appropriate disclosures and footnotes based upon information provided in the case. In some instances you will not have enough information to provide full disclosure.

Summary of Selected Accounting Policies

Judgments and Estimates—Significant judgments and estimates are made in the preparation of the financial statements. These judgments and estimates include those related to asset valuation, accrued expenses, expected interest rates, and employee service lives, among others. Some of the more critical judgments and estimates are discussed in the following accounting policies.

Investments—Passive investments are classified upon acquisition as held-to-maturity, available-for-sale, or trading. The Company makes fair value adjustments as required and reviews initial classifications based on available information.

Property, Plant, and Equipment—Property, plant, and equipment are stated at cost and are depreciated over their estimated useful lives of 5 years for vehicles, 10 years for equipment, and 30 years for buildings, using the straight-line method of depreciation, with zero residual value. Capital leases are amortized using the straight-line method.

Impairments—The Company reviews its noncurrent assets and goodwill and performs annual impairment tests. No impairment losses were identified for 2012.

Taxes—deferred taxes are provided for temporary differences between financial and tax reporting. The Company has accumulated substantial net operating loss carry-forwards in previous years and utilized the maximum net operating loss carry-forwards in the current year as allowed by law. The Company also records a valuation allowance to reduce its deferred tax assets to the amount that is more likely than not to be realized. Should the Company determine that it would (not) be able to realize more (less) of the deferred tax assets in the future, an adjustment to the deferred tax asset would be charged to income in the period such determination is made.

Case Studies in Finance and Accounting

Exhibit 1: Preliminary Financial Statements

Omega Tech, Inc.			
Comparative Balance Sheets			
at December 31, 2012 and 2011			
		12/31/2012	12/31/2011
Assets			
	Cash	\$72,000	\$114,000
	Accounts receivable	\$22,642	\$35,073
	Prepaid expenses	\$13,000	\$11,000
	Deferred tax asset	\$65,700	\$65,700
	Investments	\$65,000	\$65,000
	Land	\$200,000	\$125,000
	Equipment	\$250,000	\$100,000
	less accumulated depreciation	(\$30,000)	(\$20,000)
	Vehicles	\$37,000	\$55,000
	less accumulated depreciation	\$0	(\$10,000)
	Buildings	\$535,000	\$360,000
	less accumulated depreciation	(\$132,000)	(\$120,000)
	Construction in progress	\$6,265,000	\$2,545,000
	Patents	\$50,000	\$55,000
		<u>\$7,413,342</u>	<u>\$3,380,773</u>
Total Assets			
Liabilities			
	Accounts payable	\$83,469	\$75,000
	Salaries payable	\$18,000	\$11,000
	Noncurrent deferred tax liability	\$56,100	\$56,100
	Accrued pension liability	\$10,000	\$10,000
	Note payable-long term, 6 yr, 10%	\$600,000	\$600,000
	Mortgage payable, 6%	\$3,200,000	\$0
	10 year, 11% bonds payable	\$3,000,000	\$3,000,000
	Discount of bonds	(\$123,358)	(\$136,927)
	Construction loan, 12%	\$1,200,000	\$1,200,000
Total Liabilities		<u>\$8,044,211</u>	<u>\$4,815,173</u>
Stockholder's Equity			
	Common stock, no par	\$1,734,000	\$1,348,900
	OCI-Prior service cost	(\$30,000)	(\$30,000)
	Retained earnings	(\$2,334,869)	(\$2,753,300)
Total Liabilities and Stockholder's equity		<u>\$7,413,342</u>	<u>\$3,380,773</u>

Case Studies in Finance and Accounting

	Omega Tech, Inc.	
	Income Statement	
	for the year ended December 31, 2012	
Service revenue	\$2,087,000	
Investment revenue	11,000	
Gain	70,000	
Total Revenues		\$2,168,000
Salaries expense	\$475,000	
Operating expense	203,000	
Depreciation expense	24,000	
Research and Dev. expense	82,000	
Pension expense	200,000	
Patent amort	5,000	
Lease expense	75,000	
Interest expense	679,569	
Miscellaneous exp	6,000	
Total Expenses		\$1,749,569
Income before tax		<u>\$418,431</u>

Exhibit 2 Pension information

Balances, January 1, 2012

Memo information

Pension Benefit Obligation \$840,000

Fair value of plan assets \$830,000

Balances, January 1, 2012

Balance sheet information

Accrued pension liability \$10,000

Other comprehensive Income-Prior Service Cost \$30,000

Pension expense information

For the year ended December 31, 2012

Service cost \$160,000

Interest rate 6%

Expected return on plan assets 6.2%

Actual return on plan assets 5.5%

Average remaining service life 10 years

Contributions \$200,000

Case Studies in Finance and Accounting

Exhibit 3 Deferred Tax information

(In thousands)

At December 31, 2011						
item	book value tax	book value gaap	difference	rate	def tax	classification
NOL			230,000	30%	69,000	CDTA
Fixed assets	243,000	365,000	(122,000)	30%	(36,600)	NCDTL
CIP-int cap	2,500,000	2,545,000	(45,000)	30%	(13,500)	NCDTL
Pension	0	20,000	(20,000)	30%	(6,000)	NCDTL
Prepaid expenses	0	11,000	(11,000)	30%	(3,300)	CDTL
			Totals	CDTA	65,700	
				NCDTL	(56,100)	
2012 amounts:						
Book value of assets for tax purpose		\$470,000				
Tax rate in future periods		30%				

Case Studies in Finance and Accounting

Antiock Hardware: An Inventory Case Study

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Case Studies in Finance and Accounting

This case study presents a scenario where an error in the inventory valuation, that may prove to be significant, was found by the external auditor of a large wholesale hardware distributor during the course of their audit. Since the objective of all audit clients is to obtain an unqualified opinion, the case focuses on the ability of the client to correct the error to the extent possible and the procedures the external auditor must perform in order to determine that the corrected inventory valuation is not materially incorrect. The case also addresses the impact the detection of the error has on the external auditor's opinion on internal control and the implications it has on the rest of the audit process.

You are assigned as the audit manager for a large wholesale distributor of hardware called Antiock Hardware. Your audit team has been in the field for the year-end fieldwork for about a week. The audit staff performing the inventory cost testing found a significant error in the calculation for average cost, the cost methodology that the company uses to value its inventory. The calculation that is currently included in the computer program that calculates average cost is:

$$\frac{\text{Current cost X prior quantity} + \text{prior cost X current quantity}}{\text{Current quantity} + \text{prior quantity}}$$

The calculation that should be used is:

$$\frac{\text{Current cost X current quantity} + \text{prior cost X prior quantity}}{\text{Current quantity} + \text{prior quantity}}$$

The in-charge accountant has looked into the matter and the program change documentation indicates that the program that calculates average cost has not been modified since June of the year under audit. The change should not have included a change to the calculation for average cost, but it may have been inadvertently changed at that time. Regardless of when it was changed, it appears it has been that way for at least seven months.

It was also determined that the client can recreate the inventory file as of October 31 of the year under audit and apply all of the inventory transactions for November and December. It has also been determined that they do not have any transaction history prior to that date in their data base. You have also spoken with the controller who has ensured you that you will have access to any resources she has at her disposal in order for this to have a successful conclusion.

Your in-charge auditor has also provided you information about the client's inventory for the last three years to help you decide what the audit team should do to address the problem identified and to determine if they can perform sufficient audit work to attest to the valuation of the year-end inventory.

	2010	2011	2012
Sales	42,168,425	44,066,004	46,225,238
Cost of Goods sold	28,167,145	29,431,568	30,874,180
Inventory	695,658	729,624	764,348
Gross profit margin	33.20%	33.21%	33.21%
Days inventory	9.01	9.05	9.04

Case Studies in Finance and Accounting

Cost comparisons per

Category			
1	2,506,876	2,637,069	2,753,977
2	3,323,723	3,461,152	3,646,241
3	5,239,089	5,486,044	5,751,860
4	10,759,849	11,195,769	11,797,024
5	6,337,608	6,651,534	6,925,078
Cost of Goods sold	28,167,145	29,431,568	30,874,180
Obsolescence reserve	12,021	12,258	6,186

Required: You, the audit manager, have informed the audit partner of the potential problem that exists at Antiock Hardware. She requested that you prepare a memo to her after you have fully analyzed the situation. She specifically asked you to address the following points.

1. Is this error material?
2. Is there anything the client could do to make the situation better? Be as specific as possible.
3. Do you think you can issue an unqualified opinion on the financial statements if you receive what you requested from the client in question 2? Why or why not?
4. What additional audit procedures would you have to perform to address the impact of your detection of the inventory calculation error and the subsequent processes the client performed in order to determine that inventory is not materially incorrect?
5. Is there any additional information that you can reasonably expect to receive that would help you in completing the four previous steps?
6. Since this is a public company, can you issue an unqualified opinion on internal control? Identify the material error in internal control if you believe one exists.
7. How does the detection of this error affect the other areas of the audit?

Case Studies in Finance and Accounting

Big Training Corporation

An Instructional Case for Courses In Forensic Accounting, Auditing, Fraud Examination and Cost Accounting

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Case Studies in Finance and Accounting

Abstract

This case study discusses an actual case of attempted asset misappropriation in an organization focused on training and development activities. The names of the parties involved have been disguised; likewise, the dollar amounts. A department manager attempted to change employee work assignments and training opportunities offered to clients in an effort to maximize salaries earned by employees while potentially decreasing organizational profits significantly. Students have the opportunity to: (a) analyze the case through the lens of the Association of Certified Fraud Examiners taxonomy of occupational fraud and abuse, (b) comment on the ethical issues raised by the case and (c) conduct a sensitivity analysis of costs, revenues and profits.

Case description

This case study involves a classic agency problem in organizations: a manager attempting to maximize personal income for employees at the expense of the organization's overall profitability. Students would benefit from some background in cost-volume-profit analysis prior to using the case; they are also required to use the Association of Certified Fraud Examiners taxonomy of occupational fraud and abuse (www.acfe.com) and their code of ethics. Ethics codes of other accounting organizations (such as the Institute of Management Accountants) may also provide a useful analytical lens for the case.

Big Training Corporation background

Big Training Corporation (BTC) is a multi-divisional company specializing in providing educational seminars on various business subjects; BTC has divisions throughout the western United States, each with a specific subject area focus. Each division is treated as a profit center; each division has a general manager that enjoys substantial autonomy in decision making.

Dale is the manager of the Los Angeles division of BTC. The Los Angeles division employs a staff of twelve seminar presenters; the Los Angeles division specializes in seminars on accounting topics such as financial statement preparation and interpretation, cost management and taxation. Presenters are paid a flat fee for each seminar they give, regardless of the number of participants; most of BTC's seminars filled to capacity. The Los Angeles division's fees and costs are presented below:

Fee per student	\$ 800
Variable cost per student	300
Fixed cost per seminar	5,000

Variable costs included items such as meals, refreshments, textbooks and other materials; fixed costs primarily comprised the salary of the presenter, but also included minor amounts for allocated overhead.

Depending on the subject matter, maximum enrollment for each seminar had varied from 30 students to 40 students, with more general seminars having higher maximum enrollments. As division manager, Dale was responsible for setting the maximum size of each seminar and for assigning presenters to each seminar. Dale also had the option of giving up to five seminars throughout the year, for which he received compensation above and beyond his salary as division manager.

Case Studies in Finance and Accounting

Actions in summer 2011

Without notifying BTC's corporate office, Dale selectively reduced the maximum enrollment for some summer 2011 seminars to ten participants. Demand for the seminars remained high, leading to an increase in the number of seminars offered and a corresponding increase in presenters' salaries.

Enrollment and other figures prior to and after the change are shown in the table below:

Seminar topic	Number of seminars	Enrollment
Prior to Summer 2011		
Introduction to financial statements	1	40
Financial statement analysis	1	30
Cost accounting fundamentals	1	40
Advanced topics in cost accounting	1	30
Introduction to personal taxation	1	40
GAAP overview	1	40
Summer 2011		
Introduction to financial statements	4	10
Financial statement analysis	1	30
Cost accounting fundamentals	4	10
Advanced topics in cost accounting	3	10
Introduction to personal taxation	1	40
GAAP overview	1	40

Anthony was a consultant in the Los Angeles division whose seminar enrollments were not reduced; he was also a certified fraud examiner. He discovered the selective reductions by reviewing information freely available to employees in the accounting information system.

Required

1. Calculate the Los Angeles division's profits before and after the enrollment changes.
2. The Association of Certified Fraud Examiners (www.acfe.com) defines occupational fraud and abuse as "The use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets." Based on that definition, did Dale's actions constitute fraud?
3. Review the Association of Certified Fraud Examiners taxonomy of occupational fraud and abuse, available at www.acfe.com. Regardless of your answer to (2), where do Dale's actions fit into the taxonomy? In other words, if Dale's actions constituted fraud, what type of fraud was it?
4. Review the ACFE's code of ethics. What are Anthony's ethical responsibilities in this situation?
5. Assume one of the presenters in the Los Angeles division is Dale's son. What additional issues are raised by that assumption?

How to present the case

Students should prepare the computational analysis and brief responses to other questions prior to class discussion. The ACFE resources referred to in the case questions are available on the ACFE's web site (www.acfe.com). Specifically, the taxonomy of occupational fraud and abuse is available in the "Report to the Nations on Occupational Fraud and Abuse." Students can access the ACFE's code of ethics by typing "code of ethics" in the search box at the top of the association's web site.

Case Studies in Finance and Accounting

Sunset Medical: A Statement of Cash Flow Case

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Case Studies in Finance and Accounting

Abstract

Medical is based on a real situation occurring at an Orthopedic Medical practice in Colorado. While attending a trade show Dr. Jones, the managing partner at Sunset Medical, was approached by a medical consulting firm, Physicians Medical Inc. (PMI), to provide the practice billing and administrative services. Dr. Jones decided to hire PMI and signed a contract in February of 2011. Based on the interim financial statements that were released in June of 2011, Dr. Jones gave PMI control of the overall day to day operations of the practice. PMI immediately relieved the office manager of her duties and took over all operations of the practice. In early 2012, the 2011 financial statements were released and were not as impressive as the mid-year results. Dr. Jones is now worried that the increased power given to PMI may have been a mistake and has asked you to give a full assessment of the situation.

The case is suitable for an introductory Financial or Managerial Accounting class at the M.B.A. level once the students have a working knowledge of the financial statements. The students must critically evaluate contract language and financial statements to examine ethical dilemmas that face businesses.

Introduction

Dr. Sally Jones, a practicing Orthopedic Surgeon, is the managing partner at Sunset Medical³, a professional corporation located in Colorado. Sunset, which has been in business for approximately 10 years, is a small medical practice with 2010 revenues of just over \$1,000,000. The practice employs a support staff that includes an office manager, billing secretary, nurse, and radiology technician. In addition to the staff, Sunset retains Jackson and Associates, a CPA firm, to provide financial statements and tax documents. As a small, privately held corporation, Sunset is only required to submit an Income Statement and Balance Sheet using cash basis accounting, which Jackson and Associates prepares. Most of the staff and the CPA firm have been with Sunset Medical for all ten years of Sunset's operation. Exhibits 1 and 2 show the Income Statements and Balance Sheets provided by Jackson and Associates for the years 2008, 2009, and 2010.

In January 2011, Sunset was considering the purchase of a new X-Ray machine and attended a trade show to do some research. While attending the trade show, Dr. Jones was approached by Ron Wilson of Physicians Management Inc. (PMI) with a proposal to provide management and billing services to Sunset Medical. Mr. Wilson is the founder and CEO of PMI, a two-year old medical billing and administrative service company serving the southwest United States. PMI based its value proposition on increasing revenues, decreasing administrative expenses, and helping manage cash flows. Since administrative paperwork and billing averages between 4 and 9 percent of the expenses for most healthcare providers, not including lost revenue from billing errors, Dr. Jones decided to hire PMI to manage the practice. On February 3, 2011, a contract was signed, effectively turning over management duties of Sunset Medical to PMI.

The Physicians Management Contract

A few key points from the contract between Sunset Medical and PMI include the scope of the engagement, party responsibility, and compensation of PMI. Exhibits 3 and 4 contain excerpts from the contract discussing authority, responsibility, and compensation. Under the initial contract, PMI was to serve as the manager of the practice and assist the Business

³ While this case uses actual data from an Orthopedic practice, all names have been changed and any resemblance to actual persons or companies is purely coincidental.

Case Studies in Finance and Accounting

Office Manager in the day to day operation of the practice. Specifically, PMI was responsible for marketing, public relations, staffing (including the recruitment, hiring, and supervision of the Business Office Manager), and administration of the company's corporate compliance plan, as well as for providing unaudited financial statements including an Income Statement, Balance Sheet, and Cash Flow Statement.

To compensate PMI, Sunset agreed to pay a monthly management fee equal to four percent of monthly net revenue, determined on the accrual basis. Net revenue was determined based on gross billed revenue less contractual allowances and a reasonable allowance for uncollectable accounts. Additionally, Sunset agreed to pay a billing and collection fee equal to five percent of company's monthly net receivables.

Physicians Management Inc. – Mid-Year Performance Review

PMI began administration of Sunset in February of 2011 and immediately began making changes to the practice. Under PMI management, Sunset borrowed \$100,000; using the note and cash on hand to purchase a new X-Ray machine at a cost \$171,145. In accordance with the contract, Jackson and Associates was taken off retainer and PMI provided Dr. Jones with the Income Statement, Balance Sheet, and Statement of Cash flows for the six months ended June 30, 2011 (Exhibits 5, 6, and 7).

With the six month financial statements in hand, Mr. Wilson informed Dr. Jones of the increased revenues and cash flows. Citing these increased revenues and cash flows, Mr. Wilson asked Dr. Jones to give PMI more control of the company, including power to terminate employees. Dr. Jones granted the additional power and PMI immediately terminated the contracts of both the office manager and the billing secretary. Within days, PMI hired Jack Johnson, Mr. Wilson's son-in-law, as the new Business Office Manager.

Physicians Management Inc. – 2011 Year End Performance Review

In the beginning of 2012, PMI released Sunset Medical's 2011 financial statements to Dr. Jones. The financial statements indicated that under PMI management, Sunset increased revenues from \$1,167,041 in 2010 to \$1,601,050 in 2011. However, despite earning more than \$400,000 in additional revenue, Sunset's cash had fallen dramatically during the year. In fact, Dr. Jones had borrowed \$200,000 during the year, including the \$100,000 utilized to purchase the X-Ray machine. Exhibits 8, 9, and 10 show the year ended December 31, 2011 Income Statement, Balance Sheet, and Statement of Cash Flows as released by PMI.

Upon receiving Sunset's financial statements from PMI in January of 2012, Dr. Jones began analysis of Sunset's business practices to determine why the company was required to borrow a significant amount of money to maintain a positive cash flow. While the X-Ray machine had cost in excess of \$175,000, Dr. Jones was at a loss to explain the need to borrow an additional \$200,000, especially in light of an additional \$400,000 in revenue. Dr. Jones has asked you to utilize the Financial Statements prepared by Jackson and Associates and PMI as well as the contract between Sunset Medical and PMI to determine whether Sunset should retain PMI's management and billing services for 2012 or terminate the contract.

Is Physicians Medical Inc. acting in the best interest of Sunset Medical, P.C.? Did actual revenues jump by over \$400,000 in 2011? Are the Financial Statements prepared by PMI correct? Is there sufficient motivation for PMI to provide the services needed to support Sunset Medical, P.C.? What ethical dilemmas face PMI?

Case Studies in Finance and Accounting

Requirements and Discussion

1. Examine the 2011 financial statements provided by PMI and the 2010 financial statements provided by Jackson and Associates to answer the following.
 - a. Discuss the differences in the Financial Statements and the effect that these differences have on the Revenues and Receivables.
 - b. Discuss the ethical dilemma facing PMI in terms of preparing the Financial Statements.
2. Examine the contract and discuss how the contract language may be altered to reduce the ethical dilemma facing PMI. Additionally, how may the contract language be altered to provide incentives for PMI to perform in a manner that is more in line with desires of Sunset Medical?
3. The Financial Statements provided by Jackson and Associates and the Financial Statements provided by PMI use different accounting methods (cash vs. accrual) and are therefore, not compatible.
 - a. Recompute the Income Statement and Balance Sheet provided by PMI on December 31, 2011 to make the two years comparable.
 - b. Recalculate the Statement of Cash Flows provided by PMI for December 31, 2011 using the recalculated Income Statement and Balance Sheet as well as the correct beginning account balances.
 - c. Discuss the differences between the Statement of Cash Flows provided by PMI and the Statement of Cash Flows prepared by you.
4. Should PMI's management and billing services be retained for 2012 or should Dr. Jones bring the management and billing functions back in house?

Case Studies in Finance and Accounting

Exhibit 1 - Sunset Medical, P.C. Income Statement For Years Ended 2008, 2009, 2010

(Provided by Jackson and Associates, CPA)

Sunset Medical, P.C.

Income Statements

For Years Ended, December 31,	2010	2009	2008
<u>Revenues</u>			
Medical Revenues *	\$1,167,041.88	\$1,057,322.77	\$802,864.47
<u>Expenses</u>			
Direct Expenses	\$758,738.98	\$667,645.64	\$465,250.49
General Expenses	\$393,330.15	\$358,141.19	\$331,243.98
Interest Expense	\$5,804.66	\$3,133.93	\$5,289.70
Depreciation Expense	\$14,385.00	\$14,832.92	\$14,222.00
Total Expenses	<u>\$1,172,258.79</u>	<u>\$1,043,753.68</u>	<u>\$816,006.17</u>
Net Operating Income	(\$5,216.91)	\$13,569.09	(\$13,141.70)
Other Income	\$203.40	\$615.25	\$589.10
Other Expense	(\$228.04)	(\$554.67)	(\$1,780.02)
Total Other Income (Expense)	(\$24.64)	\$60.58	(\$1,190.92)
Net Income	<u>(\$5,241.55)</u>	<u>\$13,629.67</u>	<u>(\$14,332.62)</u>

* Medical Revenues are listed net of Bad Debt

Case Studies in Finance and Accounting

Exhibit 2 - Sunset Medical, P.C. Balance Sheet For December 31, 2008, 2009, 2010

(Provided by Jackson and Associates, CPA)

Sunset Medical, P.C.

Balance Sheet

December 31,	2010	2009	2008
<u>Assets</u>			
Cash	\$1,719.87	\$1,304.84	\$6,472.12
Accounts Receivable	\$450,797.12	\$568,221.88	\$335,879.95
Less: Allowance for Bad Debts	(\$450,797.12)	(\$568,221.88)	(\$335,879.95)
Accounts Receivable, Net	\$ -	\$ -	\$ -
Accounts Receivable, Other	\$ -	\$ -	\$25,000.00
Prepaid Expenses	\$81,946.82	\$ -	\$1,282.96
Notes Receivable – Employee	\$4,283.70	\$5,753.70	\$6,853.70
Notes Receivable - Dr. Jones	\$57,904.35	\$58,483.69	\$58,483.69
Property & Equipment	\$132,623.19	\$127,641.97	\$123,303.75
Less: Accumulated Depreciation	(\$121,876.00)	(\$107,491.00)	(\$92,658.00)
Property & Equipment, Net	\$10,747.19	\$20,150.97	\$30,645.75
Total Assets	<u>\$156,601.93</u>	<u>\$85,693.20</u>	<u>\$128,738.22</u>
<u>Liabilities</u>			
Accounts Payable	\$ -	\$ -	\$ -
FICA Withholding Payable	\$1,666.69	\$3,653.57	\$753.13
Federal Withholding Payable	\$24,835.27	\$64,544.28	\$10,113.58
State Withholding Payable	\$2,486.00	\$10,110.00	\$3,231.00
State Tax Payable	\$9.76	\$10.30	\$11.06
Notes Payable	\$125,470.71	\$ -	\$120,884.07
Total Liabilities	\$154,468.43	\$78,318.15	\$134,992.84
<u>Stockholders' Equity</u>			
Common Stock	\$25,000.00	\$25,000.00	\$25,000.00
Retained Earnings	(\$22,866.50)	(\$17,624.95)	(\$31,254.62)
Total Stockholders' Equity	\$2,133.50	\$7,375.05	(\$6,254.62)
Total Liabilities + Stockholders' Equity	<u>\$156,601.93</u>	<u>\$85,693.20</u>	<u>\$128,738.22</u>

Case Studies in Finance and Accounting

Exhibit 3: Authority and Responsibility of Medical Management Inc.

- 1.1 Engagement: company engages PMI to perform the functions and to provide services described in this agreement and PMI accepts the engagement under the terms and conditions set forth in this agreement.
- 1.2 General: PMI shall serve as manager of the practice. Subject to limitations and condition set forth in this agreement, PMI, as manager of the practice shall conduct, supervise, and otherwise manage the day-to-day operations of the practice on behalf of and for the account of the company. In the absence of written directions from the Chief Executive Officer with respect to any matter, PMI shall exercise reasonable business judgment in its management activities and operation of the practice
- 1.3 Business Office Manager: PMI shall assist company with the recruitment, hiring, and supervision of a Business Office Manager of the practice who will be an employee of the company provided that the CEO shall have the right to approve the hiring and termination of the Business Office Manager. The Business Office Manager should report to the company and shall confer, consult, and cooperate with PMI regarding implementation of the office management and business management services set forth in this agreement. The Business Office Manager shall work primarily on-site at the practice and shall be primarily responsible for the following facets of administration of the business of the company:
 - 1.3.1 Day to day operation of the practice
 - 1.3.2 Marketing of the practice
 - 1.3.3 Public relations of the practice with patients and the community
 - 1.3.4 Staffing and scheduling for the practice
 - 1.3.5 Effective utilization of the practice's facilities
 - 1.3.6 Administration of the company's corporate compliance plan
 - 1.3.7 Implementation of policies of the company
- 1.4 PMI will be responsible for preparation of unaudited financial statements
 - 1.4.1 Income Statement
 - 1.4.2 Balance Sheet
 - 1.4.3 Cash Flow Statement

Exhibit 4: Compensation of Medical Management Inc.

- 2.1 Monthly Management Fee: To compensate PMI and its affiliates for the provision of planning, management and other services, the company shall pay PMI a monthly management fee equal to four percent (4%) of monthly net revenue of company for the respective month, determined on the accrual basis. For the purpose of the monthly net revenue shall mean gross billed revenue less (a) contractual allowances, and (b) a reasonable allowance for uncollectable accounts.
- 2.2 Billing and Collection Fee: To compensate PMI for the provision of billing and collection services under this agreement, the company shall pay PMI a monthly billing and collection fee equal to five percent (5%) of company's monthly net receivables as defined in section 2.1 above.

Case Studies in Finance and Accounting

Exhibit 5 - Income Statement for Six Months Ended June 30, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Income Statements

For Six Months Ended, June 30, 2011

Revenues

Medical Revenues	\$ 961,039.73
------------------	---------------

Expenses

Direct Expenses	\$ 363,102.36
-----------------	---------------

General Expenses	\$ 247,513.39
------------------	---------------

Interest Expense	\$ 5,287.74
------------------	-------------

Depreciation Expense	\$ 12,655.31
----------------------	--------------

Total Expenses	\$ 628,558.80
----------------	---------------

Net Operating Income	\$ 332,480.93
----------------------	---------------

Other Income	\$ 3,416.38
--------------	-------------

Other Expense	\$ (15,890.77)
---------------	----------------

Total Other Income (Expense)	\$ (12,474.39)
------------------------------	----------------

Net Income	<u>\$ 320,006.54</u>
------------	----------------------

Case Studies in Finance and Accounting

Exhibit 6 - Balance Sheet as of June 30, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Balance Sheet

June 30, 2011

Assets

Cash		\$ 53,614.43
Accounts Receivable	\$ 313,627.76	
Less: Allowance for Bad Debts	\$ -	
Accounts Receivable, Net		\$ 313,627.76
Accounts Receivable, Other		\$ -
Prepaid Expenses		\$ 24,868.15
Notes Receivable – Employee		\$ -
Notes Receivable - Dr. Jones		\$ 62,324.50
Property & Equipment	\$ 303,768.48	
Less: Accumulated Depreciation	\$(134,531.31)	
Property & Equipment, Net		\$ 169,237.17
Total Assets		<u>\$ 623,672.01</u>

Liabilities

Accounts Payable	\$ 77,086.48	
FICA Withholding Payable	\$ -	
Federal Withholding Payable	\$ -	
State Withholding Payable	\$ -	
State Tax Payable	\$ -	
Notes Payable	\$ 224,445.51	
Total Liabilities		\$ 301,531.99

Stockholders' Equity

Common Stock	\$ 25,000.00	
Retained Earnings	\$ 297,140.04	
Total Stockholders' Equity		\$ 322,140.04
Total Liabilities + Stockholders' Equity		<u>\$ 623,672.03</u>

Case Studies in Finance and Accounting

Exhibit 7 - Statement of Cash Flows for Six Months Ended June 30, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Statements of Cash Flows

For Six Months Ended, June 30, 2011

Cash Flows From Operating Activities

Net Income (Loss)	\$ 320,006.52	
Changes in Accounts Receivable, Net	\$(313,627.76)	
Changes in Accounts Receivable, Other	\$ -	
Changes in Prepaid Expenses	\$ (24,868.15)	
Changes in Accumulated Depreciation	\$ 134,531.31	
Changes in Accounts Payable	\$ 77,086.48	
Changes in FICA Withholding Payable	\$ -	
Changes in Federal Withholding Payable	\$ -	
Changes in State Withholding Payable	\$ -	
Changes in State Tax Payable	\$ -	
Total Change in Cash from Operating Activities		\$ 193,128.40

Cash Flows from Investing Activities

Changes in Property & Equipment	\$(303,768.48)	
Changes in Notes Receivable – Employee	\$ -	
Changes in Notes Receivable - Dr. Jones	\$ (62,324.50)	
Total Change in Cash from Investing Activities		\$ (366,092.98)

Cash Flows from Financing Activities

Changes in Notes Payable	\$ 224,445.51	
Common Stock	\$ 25,000.00	
Retained Earnings	\$ (22,866.50)	
Total Change in Cash from Financing Activities		<u>\$ 226,579.01</u>

Net Increase / (Decrease) in Cash \$ 53,614.43

Beginning Cash \$ -

Ending Cash \$ 53,614.43

Case Studies in Finance and Accounting

Exhibit 8 - Income Statement for Year Ended December 31, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Income Statements

For Year Ended December 31, 2011

Revenues

Medical Revenues	\$ 1,601,050.52
------------------	-----------------

Expenses

Direct Expenses***	\$ 719,880.70
--------------------	---------------

General Expenses	\$ 567,372.88
------------------	---------------

Interest Expense	\$ 16,690.68
------------------	--------------

Depreciation Expense	\$ 34,147.56
----------------------	--------------

Total Expenses	<u>\$ 1,338,091.82</u>
----------------	------------------------

Net Operating Income	\$ 262,958.70
----------------------	---------------

Other Income	\$ 4,261.93
--------------	-------------

Other Expense	\$ (36,050.84)
---------------	----------------

Total Other Income (Expense)	\$ (31,788.91)
------------------------------	----------------

Net Income	<u>\$ 231,169.79</u>
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Case Studies in Finance and Accounting

Exhibit 9 - Balance Sheet as of December 31, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Balance Sheet

December 31, 2011

Assets

Cash		\$ (6,458.09)
Accounts Receivable	\$ 426,876.79	
Less: Allowance for Bad Debts	\$ -	
Accounts Receivable, Net		\$ 426,876.79
Accounts Receivable, Other		\$ 38,879.88
Prepaid Expenses		\$ 19,659.78
Notes Receivable – Employee		\$ -
Notes Receivable - Dr. Jones		\$ 56,020.51
Property & Equipment	\$ 308,150.84	
Less: Accumulated Depreciation	\$(156,023.56)	
Property & Equipment, Net		\$ 152,127.28
Total Assets		<u>\$ 687,106.15</u>

Liabilities

Accounts Payable	\$ 127,018.91	
FICA Withholding Payable	\$ -	
Federal Withholding Payable	\$ -	
State Withholding Payable	\$ -	
State Tax Payable	\$ -	
Notes Payable	\$ 326,783.95	
Total Liabilities		<u>\$ 233,303.29</u>

Stockholders' Equity

Common Stock	\$ 25,000.00	
Retained Earnings	\$ 208,303.29	
Total Stockholders' Equity		<u>\$ 233,303.29</u>
Total Liabilities + Stockholders' Equity		<u>\$ 687,106.15</u>

Case Studies in Finance and Accounting

Exhibit 10 - Statement of Cash Flows for Year Ended December 31, 2011

(Prepared by PMI)

Sunset Medical, P.C.

Statements of Cash Flows

For Year Ended December 31, 2011

Cash Flows From Operating Activities

Net Income (Loss)	\$ 231,169.79	
Changes in Accounts Receivable, Net	\$(426,876.79)	
Changes in Accounts Receivable, Other	\$ (38,879.88)	
Changes in Prepaid Expenses	\$ (19,659.78)	
Changes in Accumulated Depreciation	\$ 156,023.56	
Changes in Accounts Payable	\$ 127,018.91	
Changes in FICA Withholding Payable	\$ -	
Changes in Federal Withholding Payable	\$ -	
Changes in State Withholding Payable	\$ -	
Changes in State Tax Payable	\$ -	
Total Change in Cash from Operating Activities		\$ 28,795.81

Cash Flows from Investing Activities

Changes in Property & Equipment	\$(308,150.84)	
Changes in Notes Receivable – Employee	\$ -	
Changes in Notes Receivable - Dr. Jones	\$ (56,020.51)	
Total Change in Cash from Investing Activities		\$ (364,171.35)

Cash Flows from Financing Activities

Changes in Notes Payable	\$ 326,783.95	
Common Stock	\$ 25,000.00	
Retained Earnings	\$ (22,866.50)	
Total Change in Cash from Financing Activities		\$ 328,917.45

Net Increase / (Decrease) in Cash	\$ (6,458.09)
Beginning Cash	\$ -
Ending Cash	\$ (6,458.09)

Case Studies in Finance and Accounting

Brad's Time for a Decision

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Case Studies in Finance and Accounting

Abstract

In the following case a new auditor feels under pressure to report time that does not exceed a high-stretch budget, even if the audit task takes more time than budgeted. It provides an opportunity for students to make a decision with ethical dimensions. Students also can debate whether the cultural setting makes a difference. It also reviews some budgeting concepts.

Brad's Situation

After graduating as an accounting major from a large university, Brad was excited to start his career at Bier & Associates CPAs, an international professional services firm. The firm has offices in eight countries and offers assurance, tax and consulting services. Brad had made an intense effort to get his job in a time of economic uncertainty and high unemployment. He knew that it would be an important first step in his career, and looked forward to gaining valuable experience. After a week of orientation and training, he was sent to the firm's largest audit client in New York City.

It was a sunny Monday morning in January 2011, and his first assignment was to audit the Cash Account. He liked his immediate supervisor Lauren Lind, and at first, things went well. However, at the end of the week, he started to notice some strange rumblings amongst the staff. Word was that the client had demanded a 15 percent fee cut from all their vendors, including their auditor.

On Monday afternoon (the sixth day of the audit), Lauren called him to her desk. Lauren said, "The audit partner has cut my time budget by 15 percent. This puts considerable pressure on our audit team. I had given you a time budget for cash of 160 hours, which was the amount of time required in the prior year. I am counting on you to get the job done in 136 hours."

Brad tried to be as efficient as possible while auditing the cash account, but he also wanted to be thorough and not miss any discrepancies. By Wednesday afternoon, he concluded that it was unrealistic to do less work than last year and maintain audit effectiveness.

He discussed his view with Lauren at 4:30 PM on Wednesday. In responding, Lauren seemed sympathetic. She said, "I can see your point. However, our performance evaluations will be based on staying within the bounds of the revised time budgets. I want you to get the job done in 136 hours." Brad interpreted this message as do not report more than 136 hours.

Time for a Decision

Brad worked until 8:30 PM on Wednesday. He did not get paid for overtime. Brad had planned to spend two or three hours studying for the CPA exam, but he was too tired. Also, he was worried. Brad's views on the time budget had not changed. He realized that he had to decide what to do by Thursday morning.

Brad is concerned that he will not be able to confirm the cash balances with all of the banks and finish the cash audit program without going over budget. Should he bring this to the attention of Lauren again? Or, should he go over her head and talk to the audit manager, who may also be focused on promotion to partner and concerned with audit time budget as well? Brad does not want to get Lauren, or him, in trouble.

Required

1. Why do firms use time budgets? What is a high-stretch budget?
2. Identify at least three alternatives that Brad should consider. Discuss the alternatives and factors that Brad should consider in making his decision. In your discussion, give

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consideration to using an ethics model. Examples of ethics models or guidance are listed in Appendices A and B.

3. What should Brad do? Explain why the alternative that you selected was preferable to the others.
4. Would your decision be influenced if Brad's discussions with some staff accountants who were hired last year revealed that underreporting time was a common practice in the firm. According to the grapevine, some partners underreported time.
5. Would your analysis (including consideration of cultural factors) and decision be different if Brad was an expatriate working at an audit firm in:
 - a. Berlin Germany?
 - b. Shanghai, China?

The Geert Hofstede™ Cultural Dimensions model (see Appendix C) may be helpful.

Case Appendices

Appendix A

Professional Association Ethics Guidance: AICPA Code of Professional Conduct

<http://www.aicpa.org/Research/Standards/CodeofConduct/Pages/default.aspx>

Appendix B

Traditional Ethics Stakeholder Models

In ethics decisions, any individual or group that may be impacted has a stake in the outcome. Thus, alternative actions should be evaluated from a number of perspectives:

What stakeholder rights are being violated?

Is there an overriding duty to any stakeholders?

Will an alternative benefit any stakeholder to the detriment of another stakeholder? If a possible detriment to a stakeholder is a concern, should this be remedied? If so, what modification of alternative would provide relief?

Utilitarian Model

The utilitarian believes that the morally correct course of action is one that brings about the greatest good for the greatest number of people?

Golden Rule Model

An action is morally appropriate if it treats all stakeholders with the same respect and dignity one would expect from others.

Kantian Model

An action is morally correct if those impacted by any decisions are respected as free and rational individuals. An action is morally correct if it minimizes the violation of the rights of all stakeholders.

Important considerations are:

Rights

Free consent

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Privacy

Freedom of conscience

Freedom of speech

Due process

Enlightened Self-Interest Model

An action is morally correct if it maximizes benefits for the individual in a way that does not arbitrarily hurt others and attempts to minimize any harm that ensues, when possible. An action is morally correct if it maximizes benefits for the stakeholders in a way that attempts to minimize harm to other stakeholders.

Appendix C

Hofstede™ Cultural Dimensions model

The Geert Hofstede™ Cultural Dimensions model is widely cited (Hofstede, 1980, 2001). Hofstede's five cultural dimensions are summarized as:

- Power Distance Index-degree of inequality in society
- Individualism- self-sufficient vs. Collectivism (loyalty)
- Masculinity- distribution of gender roles> male [assertive] vs. female [modest and caring]
- Uncertainty Avoidance Index- tolerance for uncertainty and ambiguity> degree of comfort in unstructured situations
- Long-term Orientation- perseverance and thrift vs. short term (tradition, social obligations, protecting face)

Hofstede's five cultural dimensions and data on various countries are available to students at:

http://www.geert-hofstede.com/hofstede_dimensions.php

References

Geert Hofstede, Culture's Consequences: International Differences in Work-Related Values. Beverly Hills CA: Sage Publications, 1980

Geert Hofstede, Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations. 2nd Edition, Thousand Oaks CA: Sage Publications, 2001

Case Studies in Finance and Accounting

Micro-District Coal Heating Case Study

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Case Studies in Finance and Accounting

Abstract

Energy determines economic development. Nowhere is this truer, than in the Fairbanks, Alaska's energy market, where some of the highest energy costs in the world are experienced. However, in a small isolated town, such as Fairbanks, there is currently only one main option for space heating energy, which is expensive fuel oil. Other options have significant barriers to entry or pollution. However, a coal option may work, but it is necessary to conduct a business/engineering analysis. This case is about a proposed creation of a small, coal district-heating utility that would create a local market for space heating needs for Fairbanks, Alaska. Different costs and benefits will be shown. Upfront costs will be assumed by the utility so that residences and businesses have a smooth, easy-to-pay monthly bill. The benefits of coal must be counted against the high costs of bringing in trucked natural gas, or other pollution problems.

Introduction

Fairbanks is located in the interior of Alaska about 100 miles south of the Yukon River approximately 350 miles North of Anchorage. North Pole is a smaller community about ten miles east of Fairbanks and is also a part of the pollution area, called the non-attainment area, for wood smoke and particulate pollution. The term "non-attainment" means that the Environmental Protection Agency (EPA) has designated that the area has not attained low pollution. The entire area of the Fairbanks-North Star Borough is 7,338.21 square miles, but the area of the Fairbanks non-attainment area (where most of the population and the pollution problem is located) is 30 square miles.

One of the unique historical aspects of Fairbanks at the turn of the 19th century was that when forests in and around the region were completely cut down for miles around the city, residences started to use coal in great quantities. An old coal bunker that held coal for people to buy was used for people who had coal stoves or coal boilers inside their homes. This is not unlike 1800s Europe or even 1950s America where many people had coal stoves and boilers to keep warm. However, in today's modern world, everyone uses natural gas, except in Fairbanks, where no nearby natural gas resources exist and where significant barriers to entry for a natural gas pipeline makes natural gas expensive. A better modern technology for Fairbanks would be to use coal where a modern coal utility can make the old coal furnaces, coal stoves and coal boilers of yore look old-fashioned. Modern coal heating systems can work much better and be more efficient than old coal systems, and if set up correctly can be as unassuming as natural gas, fuel oil or district heating systems.

The boiler system suggested here will only produce heat, not electricity, in order to keep capital costs down. It will have a tall chimney stack, 50 to 200 feet high, with other pollution reduction devices such as a bag house or scrubbers to keep particulate pollution and other pollution under control per state and federal regulations. The larger than normal boiler system will run hot, which will help keep particulates to a minimum regardless of the call for heat, and the system may use heat storage devices to keep the boiler operating at maximum temperatures, while shutting down for hours at a time to further reduce pollution. The coal will feed automatically into the burner; the ash will automatically be taken away and eventually buried. Maintenance will be on call with telephone type detection devices, which are able to call maintenance personnel the instant a problem arises. The technology for such a boiler system already exists, but such technology has seldom been used for small micro-district heating and never on such a wide scale for residences in an OECD country.

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Fairbanks has rail access to a large sub-bituminous coal mine with almost a billion tons of reserves about 100 miles away and where the coal can be delivered to Fairbanks and North Pole for about \$50 per ton or \$3.20 per mmBtu (\$0.37 per gallon of fuel oil equivalent or 2.33 euros (€) per Gigajoule). Assuming capital costs can be controlled and thermal losses reduced, the coal boiler should be able to deliver heat to residences and businesses for as little as half the current price of fuel oil and even be competitive versus an eventual natural gas system. While wood stoves are currently quite competitive with such a system, that will change in the future as more residences heat with wood and nearby forests become increasingly overused, and demand will cause wood prices to rise. In addition, the convenience of having a continuous supply of heat piped in versus having to process wood every day and drive to cut it yourself, will win customers over to a coal system. It is hoped that the micro-district coal utility will reduce Fairbanks particulate pollution as houses switch from the wood-fired heat, which often creates dense smoke clouds, to a single, large scale efficient coal heating system, which would have diluted and controlled emissions. Once pollution advantages are weighed, permitting should be forthcoming. These factors would go a long way to ensuring that the Interior region of Alaska obtains cheap heat.

This case study is about a general business plan. The purpose of explaining the business plan is the idea that if one specific plan can be shown to work, then it forms a basis for a new energy market where none now exists. A coal market would exist if coal heating was used extensively, but the trade-off between a natural gas trucking system and a coal system has to be analysed. That means that either a natural gas system or a coal system will be used in Fairbanks, but probably not both.

II. The Specific Fairbanks Space Heating Energy Market

The community of Fairbanks is a business hub for all of Alaska. Sources of employment include a military base, mining, oil and gas exploration to the North, as well as the main campus of the University of Alaska Fairbanks, local schools, and government offices, and other private enterprises.

Selected demographic and historical data for the community is provided below:

Population	
2010	100,000
Households	
2010	35,000
Economic Data	
Fairbanks unemployment rate 2011	6.7 %
Alaska Unemployment rate 2011	7.6 %
GDP	\$5 billion
Fairbanks Median Income	\$40,577
Alaska Median Income	\$71,395

Fairbanks' winters are some of the coldest in North America. While it can easily get chilly in June or August, it certainly will be cold from September until May. During the dead of winter, temperatures can stay well below minus 40 degrees Fahrenheit (minus 40 Celsius) for a month at a time. Therefore, heating systems have to be able to increase heating output within hours and then sustain that high heating output for months at a time. Heating costs in the interior are now running at \$5,000 per year, which is as much as home mortgage payment. Fairbanks has on average 14,000 heating degree days. One degree day is one full

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day with the temperature one degree below 70 degrees Fahrenheit. With fuel oil being sold at \$4.00 per gallon (\$32 per million Btu) and going up, Fairbanks has some of the costliest heating in the entire world.

Since home heating costs in the interior are high, Fairbanks needs a cheaper heating source like coal, which could reduce heating bills significantly. While the state of Alaska has massive natural gas reserves on the North Slope 400 miles north of Fairbanks and very good natural gas reserves around the Kenai Peninsula about 400 miles south of Fairbanks, there are no natural gas reserves near Fairbanks. Consequently residents and businesses in Fairbanks use mostly fuel oil as a heating source. In the 1990s and before, fuel oil was reasonably priced which allowed a typical house to pay \$1000 for a season of heating with fuel oil, but today many houses are facing \$5000 per year heating fuel oil bills. Plus many houses that are not adequately heated face frozen pipes, mold and mildew problems. Therefore, households have turned to other heating options, particularly wood stoves, which have increased Fairbanks' urban particulate pollution.

One of the problems with wood stoves is that wood that is burned needs to be dry. Typically wood must be cut and dried for an entire year before it can be used in wood stoves or wood boilers. If the wood is not dried, it burns inefficiently and there is considerable smoke and pollution. Lately due to so many people using wood stoves, the use of inadequate dried wood has increased, causing more smoke problems. But in general, since so many people now use wood stoves, there is more smoke even from modern wood stoves and from using well-seasoned wood. Soon the availability of wood will decline and the price of wood will increase, but coal at the Usibelli coal mine near Healy, Alaska, 100 miles away by rail, has almost a billion tons of sub-bituminous coal at less than \$0.50 per gallon of fuel oil equivalent (\$4.00 per million Btu) when bought in bulk.

There is an intense interest in a natural gas pipeline to Fairbanks, but so far it has been too expensive to build, so the only natural gas in Fairbanks currently is liquid natural gas (LNG) trucked into the Interior from the Cook Inlet near Anchorage. This makes the gas almost as expensive as fuel oil. Also there is a central district heating region in the downtown neighborhoods of Fairbanks, but that central district heat, which is tied to a large coal fired power plant, has not been able to expand significantly due to costs of constructing a large underground pipeline system.

There does exist in downtown Fairbanks a coal-fired power plant which sells district heating for downtown areas, both steam and hot water. One option has been to expand that district, but because of significant costs of underground utilidors, that heating district has not been expanded, so a set of micro-district heating utilities can complement the main downtown heating district. Micro-districts would be more cost effective as they would not necessarily need large underground utilidors but could use above-ground, backyard utilidors that are well insulated. A small micro-district system can attain the economies of scale of using multiple customers, while avoiding the dis-economies of scale of having too large of a system.

II.1 Pollution Issues

Currently, Fairbanks faces a pollution crisis because many residences are heating with wood stoves, much of which emits particulates and other noxious fumes. Even modern wood stoves are not totally clean. The biggest problem is that Fairbanks has a winter temperature inversion which is where temperatures are colder on the ground than 100 feet above in the air. This inversion causes pollution to stick low to the ground and causes everyone to breathe the dirty air. The inversion creates an ice fog as cars and other burning devices release small amounts of water vapor, then the ice fog also captures other noxious fumes. Nothing can be

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done to stop the winter temperature inversion, but it is possible to release fumes high in the air so that those fumes release above the inversion phenomenon.

Due to all this pollution, the U.S. federal government is imposing restrictions on smoke in the city. These restrictions are intended to clean the air and create a healthy environment for those with existing health concerns, the young, and the elderly and to prevent the healthy from acquiring health problems in the future. However, the effect of those restrictions is to force everyone to use expensive fuel oil and people are starting to be challenged financially. This is hurting the Fairbanks economy.

Here are facts about current pollution concerns:

- Wood smoke is the source of more than 60 percent of the PM_{2.5} particles
- Small particles less than 10 micrometers in diameter pose the greatest problems
- Smoke causes increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing
- The pollution can cause the development of chronic bronchitis
- The federal government has designated that Fairbanks is a non-attainment area and has threatened to withdraw funding for roads and other services if Fairbanks does not reduce particulates.
- Coal's contributions to PM_{2.5} particles is negligible—less than 1%, in spite of coal contributing more to Fairbanks' heat load than wood, due to the downtown district heating.

II.2 Energy Characteristics for Space Heating

Not all energy is created equal. Clearly gasoline has energy characteristics that are much different from electricity. Therefore, while energy is often defined and measured in terms of its thermal equivalent British thermal units (Btu) or Joules or kilowatt-hours, not all Btus have the same value. Different energy resources have different non-thermal energy characteristics which can be considered a quality of each energy resource. High quality energy is more useful for determining economic growth than low quality energy. Therefore, by defining characteristics of energy, we can gain another valuable index or indicator of potential usefulness and value of a given energy resource no matter what the technological or market environment the energy resource is in.

Georgescu-Roegen (1971) and Reynolds (1994) use an engineering definition, based on physics, called the state grade, in order to differentiate energy characteristics and determine energy value outside of Btu content. The energy-state-grade includes the following: liquid, gas, solid and field. Since technological and economic substitutions change over time, it is not always possible to correctly index the economic value of each type of energy such that you can get a universal ordinal value of energy, but in general, energy can be assigned a cardinal rank of importance based on its energy-state-grade characteristics as table 1 shows.

Some may be surprised that oil sand and oil shale are considered solid energy resources like coal; yet at room temperature and pressure, they are not liquids but solids. They must be transformed into a liquid. Just so, alcohol fuels are not liquid energy resources, they start as a solid state grade grain or sugar and are then converted into a liquid which is why there are not included as energy (natural) resources. Another surprising aspect of the definition of a state-grade is what is called a field. The first three energy-state-grades are energy resources that combust in a hydrocarbon process with oxygen whereas the last energy-state-grade is an

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energy resource that exists in a constant state of irradiative or pressurized power. These field state-grade energy resources must be captured as they irradiate energy—in an energy field as it were. While nuclear uranium fuel is not exactly free, it is close to it as there are trillions of Btus of available energy in every pound of pure uranium and the biggest cost occurs when paying for the capital to convert the uranium into electricity, not the cost of the uranium fuel itself. This is similar for solar, wind and hydropower. It is the capital cost not the raw energy input cost that makes these energy systems so costly.

Cardinal Rank	Physical Energy-State-Grade Characteristic	Examples of existing natural resources	2010 price, value per thermal equivalent unit wholesale
1	Liquid	Crude Oil, natural gas liquids	\$20 per mmBtu
2	Gas	Natural gas (methane)	\$4 per MMBtu
3	Solid	Coal, oil sands*, oil shale*	\$2 per MMBtu (coal)
4	Field	Nuclear (uranium), solar, wind, hydropower	Free (solar, wind)

* Oil sand and oil shale (i.e. not the shale oil that occurs in shale gas formations) are hard solids in their natural in-situ state and must therefore be transformed into a liquid before they are sold as a liquid energy resource to refiners. Therefore, they are considered, like coal, a solid state-grade energy resource in-situ.

Regardless of such a ranking system, it is still possible for low rank energy resource to replace a high rank energy resource such as when cars use electric batteries as a fuel source. However, electricity is not an energy (natural) resource, it is a technology. The actual energy resource that is used to produce electricity is coal, oil, natural gas, uranium (nuclear) or hydro-power. Furthermore, electricity and electrical technological development for the use of electric vehicles has existed for over one hundred years, and yet there has rarely been an independent electric only vehicle in mass production for a sustained number of years. Moreover, whenever there is an energy source that is a low rank energy, such as hydro-power used to produce electricity, and it is used for a technology that normally uses a high rank energy, such as for automobiles, the Energy Return on (Energy) Investment (EROI) of the alternative process is usually much lower. See Hall (2008), Hall et. al (2009) and Hall et. al (1986). Thus if you look at the energy chain from the energy source in-situ to the final energy service—the so called “well to wheel” analysis—then the total EROI of the process is much less for electric technologies than for oil technologies. This means high rank oil is an integral ingredient of our modern economy, and we cannot continue to produce as much GDP without it.

Therefore, the biggest concern in energy is not running out of energy, but the cost of liquid energy resources. In the case of Fairbanks, it is not necessary to have an oil fuel, but a natural gas or a coal fuel will do. Peak oil can therefore cause fuel oil to become more expensive, even with the increase of liquid fuel alternatives.

Coal Business Specifications

The proposed business will be a residential and commercial heating utility. It will be composed of small districts, or micro-districts, similar to a large district heating system. The utility will burn coal at a central location and heat water in a boiler. The boiler water will be piped in utiladors to residential or commercial buildings. The coal boiler will emit the smoke

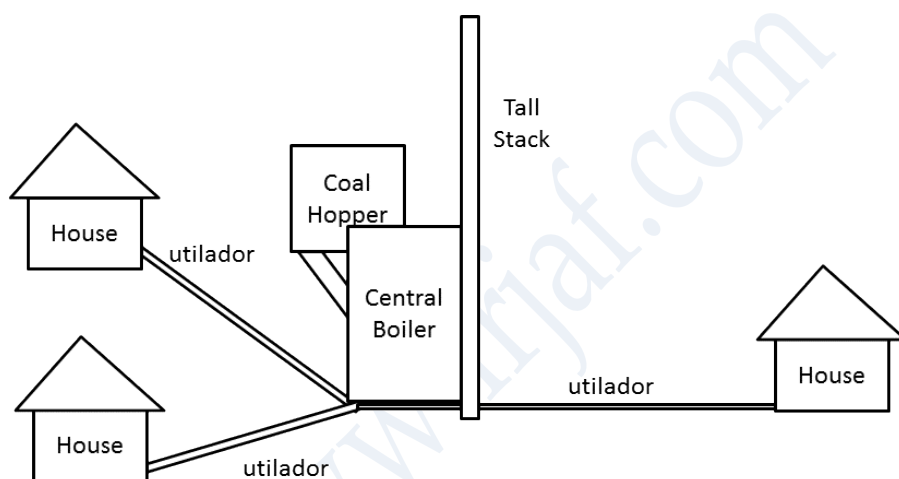
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through a tall smoke stack some 50 to 200 feet high (20 to 70 meters) in order to dissipate particulates and other noxious emissions above the Fairbanks winter temperature inversion.

Residences will have a smooth monthly payment and all coal handling will be automated and done by the coal utility. The utility will incur all the upfront costs and provide residences with a smooth affordable heating bill.

It is clear that coal can replace oil. However, oil heating is amenable to micro-economies of scale where smaller boilers are more efficient than larger boilers due to their proximity to the consumer. Additionally when extra fuel is needed, these small, oil boilers are scalable and can respond to the changing needs of the household or weather and climate conditions.

However, even though a coal micro-district heating system is small, it can nevertheless use macro economies of scale. The key is to make these large, capital projects, with larger boilers and large coal storage units to reduce the cost of using coal in time and money. However, if coal projects are too large, such as most conventional district heating projects, then they can result in dis-economies of scale, by not being able to scale quickly to larger or smaller heating needs of the customers nor can they add on new customers quickly.



Schematic of the Micro-District Heating Utility Project

By using a medium scale, micro-district heating system, with a 10 to 20 million Btu boiler (3000 to 6000 kw), the project can attain the economies of scale cost reductions of a large district heating operation but also have the flexibility of achieving the micro-economies of scale of a small oil boiler by saving energy when heat is not needed. A back-up oil boiler can also be used for extreme cold top-up heat or for breakdowns. Once coal heating capital costs are reduced, by limiting the area and number of customers served, micro-district economies of scale can be maintained more efficiently. As more micro-districts are added, there will be economies of scale for maintenance, finance and replacement costs. This could be the wave of the future for home heating. Even though natural gas is cheaper now in the lower 48, it may not be cheap in some areas. Certainly many places around the world without access to cheap natural gas may need just such coal heating systems.

Competitors for a coal utility would be wood stoves, natural gas and fuel oil. The cheapest of these today are wood stoves; however, because small stoves are polluting, many of these wood stoves users may rather use coal micro-district heat once they realize how low-polluting it will be. Plus the wood stove users engage in a lot of physical labor to fuel their stoves. This could be obviated if they instead used micro-district heat. Wood prices have risen by 100% over the last five years as more and more people have used wood as a fuel. Many wood providers advertise seasoned wood that is not fully seasoned causing harmful

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pollution by even the best-intentioned. Often the wood has to be bought a year ahead of time, split and stacked by the wood user in order to properly season the wood. The user often needs a shed built just for wood at some expense. Buying new wood stoves to meet EPA regulations often means changing the floor, wall, stove pipe, hearth or other aspects around the wood stove. This increases the costs of using wood. Those who cut their own wood drive an average of 20 to 50 miles away from town to obtain their wood fuel source.

The natural gas is still some years away from being a reality due to the significant barriers to entry of transportation costs. Even if natural gas supplies do make it to the interior, it may not be enough for everyone.

Operations

The coal will come from Usibelli coal mine from Healy, Alaska, by train where there is 100 years' worth of reserves. Coal cars can deliver coal in 2010 dollars for as low as \$50 per ton in bulk. The coal is burned in the boiler. Smoke can be scrubbed and emitted through a very high smoke stack to rise above the temperature inversion experienced in the region in the winter.

One of the advantages of having central boilers running the entire system is that in the summer much maintenance work can be accomplished with the same personnel while the need for the boilers is small. One option is to have back-up boilers such as an oil boiler which can help in shoulder seasons and as a top-up for extreme cold. Then, different boilers can be run on different summer seasons to allow all the boilers to be properly maintained.

Insurance will be purchased to cover the boiler system, the smoke stack and scrubber system, personnel including accidents. Insurance will also cover the possibility of a smoke stack falling or being hit by an airplane, or other coal related liabilities. OSHA guidelines must be met.

Revenue

The revenue required to support a micro-district heating system will come from commercial, residential, and other users. The revenue requirement will be estimated based on the projected annual costs for the preferred system. Based on these projections, the annual revenue requirement for one micro-district heating system is projected to be approximately \$300,000 per year. Here are two examples of micro-districts.

Type	Per charge	unit	Hook up Fee (one time)	Expected yearly use	Expected Yearly Revenue
Residential Micro-District:					
Residential yearly Fee	\$20/mmBtu		\$4,000	150 mmBtu	\$3,000
Small Commercial user	\$20/mmBtu		\$5,000	150 mmBtu	\$3,000
100 small users					\$300,000
Commercial Micro-District:					
Large Commercial users	\$20/mmBtu		\$15,000	1500 mmBtu	\$30,000
10 large users					\$300,000

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Capital Costs

These are capital costs per micro-district. There are three cost categories that will be incurred in the ongoing operation and upkeep of the micro-district heating utility—Operations and Maintenance (O&M), personnel and Repairs and Replacements (R&R).

For Single Micro-District:

Coal Boiler Units (1)	\$200,000
Oil Back up Boiler	\$50,000
Piping	\$200,000
Smoke Stack	\$80,000
Truck	\$100,000

Equipment Dépréciation Schedule

Description of Equipment	Number	X	Cost	÷ useful life	= Depreciation
Coal Boiler	1		\$200,000	20	\$10,000
Oil Backup Boiler	1		\$50,000	20	\$5,000
Piping (utilidor)	1 mile		\$200,000	30	\$6,667
Smoke Stack (200 feet)	1		\$80,000	20	\$4,000
Truck for 5 micro-districts	1/5		\$100,000	10	\$2,000
Total					\$27,667

Administration Costs

This is Administration and other fixed expenses which will cover 10 micro-districts. The following costs will include benefits, insurance, social security and taxes.

ADMINISTRATION:	yearly total	Per Micro-District
Manager	\$60,000	\$6,000
Engineer/operator	\$60,000	\$6,000
Finance/accounts clerk	\$30,000	\$3,000
Labor \$50,000 x 4	\$200,000	\$20,000
Office Space (phone, internet)	\$30,000	\$3,000
Administration Total	\$350,000	\$35,000
SITE LAND		
Lease or buy land x 10	\$100,000	\$10,000
Total	\$450,000	\$45,000

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Repairs and Replacement

The organization will incur expenses relating to the repairs and replacement of the system. Repairs and replacement (R&R) costs are those expenses defined, as items costing more than \$1,000 and that are not replaced on an annual basis.

An estimate has been made of the expected annual R&R costs for major equipment, i.e. pumps, heat exchangers, boilers, and system controls. The details of these calculations are depicted on the spreadsheet below. The total amount that should be annually set aside for major equipment R&R is \$17,166.

Description of Equipment	Number	X	Cost	÷ useful life	= Depreciation
System Controls	200	X	\$400	÷ 20	= \$4,000
Heat Exchangers	100	X	\$1000	÷ 20	= \$5,000
Pumps	10	X	\$16,000	÷ 20	= \$8,000
Augers	10	X	\$4,000	÷ 20	= \$2,000
Other misc. equipment, hammers, saws and other basic tools					\$1000
Total (R & R)					\$20,000

Energy Costs

The Micro-district coal heating utility's energy costs will include the purchase of coal by rail from the Healy coal mine. A 20 year contract is possible. Because of normal losses in any heating system, there will need to be more coal energy than the final energy that is purchased by the customers. Electricity to run the boilers is based on a typical boiler operation.

Typical Coal Boiler operation:	per unit	Cost	Per Micro-District
Coal	20 tons/house	\$1,000	\$100,000
Electricity (\$0.20/Kw-hr)	20,000 Kw-hr	\$4,000	\$4,000
Total			\$104,000

Operations and Maintenance Costs

The Micro-district coal heating utility will incur a number of expenses relating to the operations and maintenance of the system. Operations and maintenance items are defined as expenses that are incurred on a regular basis to sustain the operation of utility assets and the cost of utility administration.

Projections per district based on ten micro-districts

Expense Category	Annual Estimate cost
Administration	\$45,000
Repairs and Replacement	\$20,000
Energy	\$104,000
Capital Replacement cost	\$27,667
Insurance	\$40,000
Total	\$236,667

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Annual Profit

Revenue per micro-district	
Residential users 100	\$300,000
Expenses per micro-district	
Total Operations and Maintenance	\$236,667
Net Operating Income	
Profit per micro-district	\$63,333
Net Operating Income for 10 micro-districts	
Profit	\$633,333

Annual estimated operating cash flow depicts the annual flow of money in and out of the business over the course of an operating year; regardless of whether or not the expenditure is fully tax deductible, such as capital expenditures (annual R&R) or loan principal payments. The value of the fixed capital will go up in value during inflation. This investment will gain in equity value and in profit over the years even if the initial profit is low.

Start Up Issues

\$20 million is required to start up the business. This will allow an initial \$2 million project and money to slowly build up the system, run it and test it. It is the case with coal boilers and heating systems that the best research is done on the ground not in the laboratory. Therefore, to wait and do heavy research will not help to lower costs as much as an actual model would serve to reduce costs.

North Pole, Alaska which is a part of the Fairbanks urban area and pollution non-attainment area (the area that the Environmental Protection Agency (EPA) says is having too much pollution) is a good place to start such a project. North Pole has one of the highest rates of using old wood stoves, the kind that pollute enormously and its residents are amenable to using coal even though there are global climate change issues with it. The demographics of North Pole are comprised of poorer residences (vis-a-vis Fairbanks) who struggle with heating costs. The positive view that alternative heating has in North Pole will be beneficial to this project.

One option for a location is near an existing coal system of which several already exist. Then the existing system can be added on to as a startup model. A new improved module next to an existing module and leasing land near the existing module could be built. This will give a good idea about costs.

For a second project, two possible locations include the Wal-Mart and surrounding retail corridor in North East Fairbanks or the North Pole Downtown district. This will allow a high heating volume in a small area and will allow enough revenue to possibly pay for other, subsequent utility projects around the community should the investor decide to expand operations.

The primary technology behind a micro-district coal heating utility is not just the boiler, but the configuration of the boiler. One idea is to just use one boiler, but that reduces the flexibility of the wide range of heating needs from low heat in the middle summer, say for summer time water heating needs, to very high calls on heat in the mid-winter when temperatures reach minus 50 degrees Fahrenheit. To counter act that high range, two boilers can be used in series both of which can be switched on and off. This will add flexibility to the system and add backup capacity for cheap costs. The second boiler may be an oil boiler

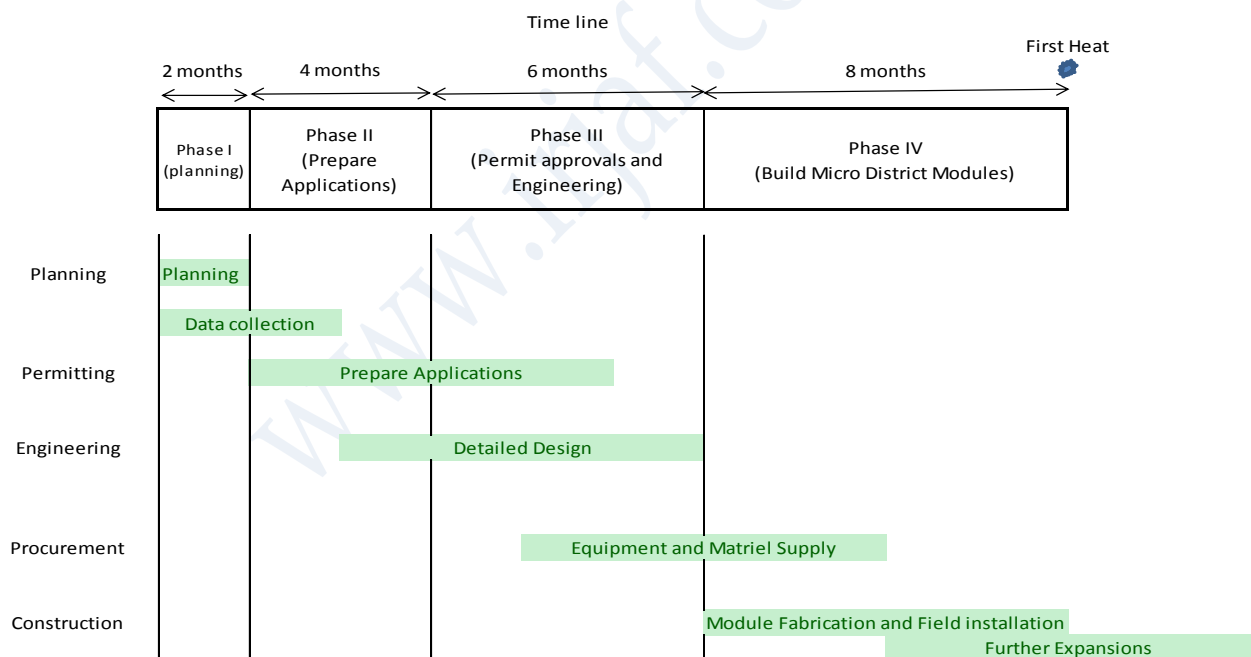
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which would be needed for extremely cold days and for summer back up while any maintenance to the main coal boiler is performed.

The primary regulatory agency for the utility will be the state of Alaska's Regulatory Commission of Alaska. The primary regulatory for the environment will be the State Department of Environmental Conservation (DEC). DEC regulates a wide array of environmental areas. Of concern to this utility project is the agencies regulatory authority over water air quality and ash disposal standards, operator training standards and engineering plan approval.

The Regulatory Commission of Alaska (RCA) is another regulatory agency that may be involved in the project. The agency is the utility regulator for the state. They issue a "certificate of public convenience and necessity" to utilities after finding them "fit willing and able" to provide the public service.

The Coal micro-district utility will be constructed over a two year period in four phases. Phase one is time to plan and cost an initial micro-district heating system in North Pole. This phase will take two months and be complete in early 2012. Phase two is the preparation of applications for a utility and environmental review. Phase three is the permit approvals which will be done in late 2012. Phase four is the construction of the system and first heat. This phase will be take 8 months. Phase five is the possible expansion of the micro-district to other residential areas.



Marketing

Based on the previous discussion of revenues and expenses, and a review of the resulting cash flow and operating income statement, the impact on the community could be quite positive. Below is the average current cost of living for most households and the effect of fuel savings they can gain from such a micro-district coal heating utility.

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Cost of Living/ Resident Ability to Pay

Description	Average Rate	Times	Amount
Median Household Income			\$40,577
Expenses:			
Rent/Mortgage	\$1,300	12	\$15,600
Food	255	52	\$13,260
Electricity	150	12	\$1,800
Fuel (Fuel Oil)	1200 gallons (\$4.50 per gl)	Per season	\$5,400
<u>Micro-District Heat</u>		<u>Per season</u>	
	<u>150 MMBtu</u>		<u>\$3,000</u>
Water and Sewer	100	12	\$1,200
Airfares			\$2,000
Clothing	150	12	\$1,800
Gifts/Holiday			\$1000
Other	50	12	\$600
Total Expenses if Household Pays for Fuel Oil			\$42,660
Total Expenses if Household Pays for Micro-District Coal Heating			\$40,260
	Net Fuel oil		(\$2083)
	Net Micro-District Heating		\$317

The target market of the coal utility is the households and businesses in the Fairbanks areas. To reach this target client, local newspaper, radio, and event sponsorship will be used as potential channels of communication. Through these potential channels, messages should be delivered that coal-based energy supply is cheaper, safer, and cleaner than the wood stove. Further, because consumers may worry about the hassle involved in installation and switching to a new type of utility, marketing communication should also emphasize the convenience of the service delivery. Consumers need to be told that all the upfront costs will be assumed by the utility so that residences and businesses will have a smooth, easy-to-pay monthly bill, reducing unwelcome volatility in their payments.

However, one important obstacle in marketing the coal utility service is the potential antagonism from the local environmentalists. Without considering the cost of using wood stove, local environmentalists will likely think that coal utility will exacerbate global warming and will produce pollutants that put local people's health at threat. These beliefs will prohibit the wide-spread adoption of the coal utility despite its economic and environmental and environmental advantage over its substitute-wood stove. To combat the false beliefs and possible negative word-of-mouth about the coal facility, some public relation work needs to be done prior to the formal launch of the coal utility.

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To promote the coal utility, a group of clients who are willing to experiment with the coal utility can be set up to enjoy the service for a winter or two for a minimum charge. Through the experimentation, we can obtain some first-hand consumer experiences with the service, which can be used to improve the service when it is formally launched. Second, data can be obtained regarding the discharge of pollutants, which can serve as solid evidence that the utility is safer and cleaner. Third, if the experimental clients are satisfied with the service, some good word of mouth can spread about the coal utility and we can also use these positive messages in a larger-scale marketing campaign about the coal utility.

In terms of public relations, one way to gain community support for such a district heating plan is to include a small building for indoor play space for toddler and young children. Winters are cold in Alaska and children need large, indoor spaces for play. Nothing exists currently for these young children. The Early Childhood Development Commission of the Fairbanks North Star Borough has documented evidence of the need for such a heated play space. The problem has been the heating costs for such a facility. This utility could offer just such a service at a low cost that would bring a huge amount of goodwill to the investor from the local community.

A natural gas trucking system is estimated to cost nearly a billion dollars for the Fairbanks area. No cost estimate is given per million Btu, but costs could be from \$15 to \$25 per million Btu, see Northern Economics (2012), as opposed to a coal system which could offer costs as low as \$20 per million Btu, but may be lower if competition induces lower capital costs. The only problem with the trucking natural gas option is that natural gas prices can increase if North Slope natural gas becomes more valuable for processing heavy oil, and it will take longer to build out a natural gas distribution system than a coal system.

Summary

This case study has shown the costs and benefits of a coal system. While the state of Alaska has massive natural gas reserves on the North Slope 400 miles north of Fairbanks and very good natural gas reserves around the Kenai Peninsula about 400 miles south of Fairbanks, there are no natural gas reserves near Fairbanks. Consequently residents and businesses in Fairbanks use mostly fuel oil as a heating source. In the 1990s and before, fuel oil was reasonably priced which allowed a typical house to pay \$1000 for a season of heating with fuel oil, but today many houses are facing \$5000 per year heating fuel oil bills. Plus many houses that are not adequately heated face frozen pipes, mold and mildew problems. Therefore, households have turned to other heating options, particularly wood stoves, which have increased Fairbanks' urban particulate pollution.

One of the problems with wood stoves is that wood that is burned needs to be dry. Typically wood must be cut and dried for an entire year before it can be used in wood stoves or wood boilers. If the wood is not dried, it burns inefficiently and there is considerable smoke and pollution. Lately due to so many people using wood stoves, the use of inadequate dried wood has increased, causing more smoke problems. But in general, since so many people now use wood stoves, there is more smoke even from modern wood stoves and from using well-seasoned wood. Soon the availability of wood will decline and the price of wood will increase, but coal at the Usibelli coal mine near Healy, Alaska, 100 miles away by rail, has almost a billion tons of sub-bituminous coal at less than \$0.50 per gallon of fuel oil equivalent (\$4.00 per million Btu or €3.00 per GJ) when bought in bulk.

There is an intense interest in a natural gas pipeline to Fairbanks, but so far it has been too expensive to build, so the only natural gas in Fairbanks currently is liquid natural gas (LNG) trucked into the Interior from the Cook Inlet near Anchorage. This makes the gas almost as

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expensive as fuel oil. Also there is a central district heating region in the downtown neighbourhoods of Fairbanks, but that central district heat, which is tied to a large coal fired power plant, has not been able to expand significantly due to costs of constructing a large underground pipeline system.

This case study also shows some of the benefits that could be had with coal heating if done properly. Currently, Fairbanks faces a pollution crisis because many residences are heating with wood stoves, much of which emits particulates and other noxious fumes. Even modern wood stoves are not totally clean. The biggest problem is that Fairbanks has a winter temperature inversion which is where temperatures are colder on the ground than 100 feet above in the air. This inversion causes pollution to stick low to the ground and causes everyone to breathe the dirty air. The inversion creates an ice fog as cars and other burning devices release small amounts of water vapor, then the ice fog also captures other noxious fumes. Nothing can be done to stop the winter temperature inversion, but it is possible to release fumes high in the air so that those fumes release above the inversion phenomenon.

Due to all this pollution, the U.S. federal government is imposing restrictions on smoke in the city. These restrictions are intended to clean the air and create a healthy environment for those with existing health concerns, the young, and the elderly and to prevent the healthy from acquiring health problems in the future. However, the effect of those restrictions is to force everyone to use expensive fuel oil and people are starting to be challenged financially. This is hurting the Fairbanks economy.

Here are facts about current pollution concerns:

- Wood smoke is the source of more than 60 percent of the PM2.5 particles
- Small particles less than 10 micrometers in diameter pose the greatest problems
- Smoke causes increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing
- The pollution can cause the development of chronic bronchitis
- The federal government has designated that Fairbanks is a non-attainment area and has threatened to withdraw funding for roads and other services if Fairbanks does not reduce particulates.

The proposed business will be a residential and commercial heating cooperative utility. It will be composed of small districts or micro-districts similar to a large district heating system. The utility will burn coal at a central location and heat water in a boiler. The boiler water or steam will be piped in utiladors to residential or commercial buildings. The coal boiler will emit the smoke through a tall smoke stack some 50 to 200 feet high (20 to 70 meters) in order to dissipate particulates and other noxious emissions above the Fairbanks winter temperature inversion.

Residences will have a smooth monthly payment and all coal handling will be automated and done by the coal utility. The utility will incur all the upfront costs and provide residences with a smooth affordable heating bill. It is clear that coal can replace oil. However, oil heating is amenable to micro-economies of scale where smaller boilers are more efficient than larger boilers due to their proximity to the consumer. Additionally when extra fuel is needed, these small, oil boilers are scalable and can respond to the changing needs of the household or weather and climate conditions.

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Energy Efficient Refrigerator – Buying Decision An Environmental Accounting Case

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Abstract

This case is designed to introduce students to the topic of environmental management accounting and provide experience in decision making with environmental costs and benefits.

Introduction to Environmental Management Accounting

This case is about a particular issue in “environmental management accounting.” Environmental Management Accounting is practiced internationally, because environmental issues and impacts are global. A good definition of environmental management accounting can be found on the web site of Victoria, Australia’s EPA (<http://www.epa.vic.gov.au/bus/accounting/whatisema.asp>).

“Environmental management accounting is a subset of environmental accounting. It is generally used to provide information for decision-making within an organization, although the information generated could be used for other purposes, such as for external reporting.”

The view that environmental management accounting predominantly relates to providing information for internal decision-making is consistent with the definition provided by the US EPA (1995) which describes environmental management accounting as “the process of identifying, collecting and analyzing information about environmental costs and performance to help an organization’s decision-making.”

The United Nations Division for Sustainable Development (UNSD) (2001) provides a slightly different definition of environmental management accounting. It emphasizes that environmental management accounting systems generate information for internal decision-making, where such information can be either physical or monetary in focus. As the UNSD states:

“The general use of environmental management accounting information is for internal organizational calculations and decision-making. EMA (environmental management accounting) procedures for internal decision-making include both physical procedures for material and energy consumption, flows and final disposal, and monetized procedures for costs, savings and revenues related to activities with a potential environmental impact.

Environmental management accounting can therefore, depending on the system implemented, provide a broad range of information about financial and non-financial aspects of an organization’s environmental performance.”

“With the growing prevalence of environmental (and social) performance indicators being used as a basis for assessing an organization and its managers (for example, in management remuneration plans) there is a need to have a mix of both financial and non-financial indicators to assess an organization’s environmental performance. For example, some managers might be rewarded in terms of dollar savings in waste costs (a financial measure), whereas other managers might be rewarded in terms of reduction in spillage rates (a non-financial measure).”

According to definitions, environmental management accounting systems have the dual purpose of managing and improving the financial and environmental performance of a business entity. It should be appreciated that environmental management accounting can generate information about how the use of resources with environmentally-related impacts affects the financial position and performance of organizations. Environmental management accounting can also consider how organizational operations impact environmental systems.

This is in contrast to conventional management accounting systems typically in use within organizations. Such systems do not give separate recognition to environment-related costs or

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impacts, instead focus on particular issues on the basis of their economic or financial decision-making relevance.

I. The Problem

The U.S. EPA has a program called “Energy Star” which is designed to induce consumers and businesses to buy energy efficient products. A full description of the program can be found on the EPA website http://www.energystar.gov/index.cfm?c=about.ab_index. We provide a condensed description.

Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. It was started in 1992 as a voluntary program that labeled products with the amount of energy they use. The more efficient models receive a higher rating. The first products to receive the Energy Star label were computers and monitors and a few years later it was expanded to include additional office equipment as well as residential heating and cooling products. It has now expanded to most major appliances as well as lighting, home electronics, and even new residential and commercial buildings. The EPA web site (as of February 2010) claimed that

Modern Energy Star efficient refrigerators are much less energy intensive than those of older vintages. This technological advancement in energy efficiency can significantly reduce energy usage and greenhouse gas (GHG) emissions as households and businesses replace the old refrigerator with a new energy efficient model.

But is this reason enough to buy an Energy Star refrigerator? According to the EPA, Energy Star qualified refrigerators are required by the U.S. Department of Energy to use 20% less energy than non-ENERGY STAR brands. The U.S. EPA web page (<http://www.energystar.gov/index.cfm?fuseaction=refrig.calculator>) with an energy cost saver calculator where one can determine approximate annual cost savings of using an energy saving refrigerator over the cost of a conventional refrigerator.

The EPA estimates that replacing an old refrigerator with a new Energy Star model saves on average \$165 per year. The EPA calculator provides more detail in that; it compares different types of refrigerators for different years as well as the differences between specific models. The question you must answer for this case is whether the savings are enough to justify replacing the old refrigerator with an Energy Star appliance.

II. Required

1. Assume that you have a 1998, 21 cubic feet, side by side refrigerator that you want to replace with a new similar Energy Star refrigerator, which can be purchased for \$1050. Assume a 12 year life for the new refrigerator and the old one will be taken by your utility and you receive \$50. Thus the net price of the refrigerator is \$1,000 paid at the beginning of year 1, also called year 0. Assume that the new refrigerator will have no salvage value. Also assume that the old refrigerator would last 12 more years if you were to keep it.
 - a. Use the EPA calculator to calculate the annual cost savings for the situation described above, under each of the following assumptions.
 - 1.1 You live in Hawaii, where energy rates are the highest in the country. (Use the energy cost data provided by the EPA calculator web site).
 - 1.2 You live in Hawaii but use the most recent monthly data on electricity prices from the Department of Energy. Enter the most recent Hawaiian residential rates from this schedule and compute the savings and discuss the differences.

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http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_06_a

- b. Open an Excel worksheet and use the PV function with the annual savings calculated in part 1.1, above, to determine the present value of the future cash savings discounted at 4%.
 - c. Use Excel again to calculate the Net Present Value (NPV) of the investment in the new refrigerator at discount rate of 4% and also the Internal Rate of Return. Explain whether or not, based on this financial return, one should buy the new refrigerator.
2. Several States have low energy costs around \$.08 per kilowatt hour. These tend to be in the Northwest. According to the chart with the EPA calculator, at the time of this writing, Washington, Idaho and North Dakota had rates less than \$.082 per kilowatt hour with Washington being the lowest. Let's assume you are a resident of Washington and your rate is \$.08 per kilowatt hour. Calculate your cost savings under the same assumptions as in question 1.1 above. Then determine the NPV of purchasing a new refrigerator under the same conditions in question 1.2 above. Report your findings.

Assume that in order to encourage energy conservation the federal government is going to offer a tax credit for the purchase of Energy Star products, how much would the credit need to motivate a citizen, under the conditions specified, assuming a 4% opportunity cost of capital, to buy the Energy Star refrigerator? If the government does not offer an incentive, what non monetary reasons might make one to buy the Energy Star product? How would the non monetary reasons for buying the refrigerator change if this was a corporation buying it for business use?

3. Refrigerators normally run on electricity. The amount of greenhouse gas caused by the fridge depends on what method is used to generate the electricity (coal, oil, gas, nuclear, etc.). For example in Rhode Island our electricity comes from a mix of all the above with no one being more than 40% of the total. Natural gas is the largest source, but Nuclear and oil are also significant.
 - a. Look at the following web site
http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html and go to table 1.2 to learn where the US derives its energy. Looking over the last several years what energy sources it most important, what sources appear to be growing and shrinking in their importance?
 - b. Assume that a state currently obtains 5% of its electricity from wind at a cost of \$.22 per kWh yet its overall average cost is \$.10 per kilowatt hour. Suppose the governor has proposed a green initiative where the percentage of electricity from coal would decrease and be replaced with wind. Assume coal generated electricity cost \$.08 and wind \$.22 per kilowatt and that the reduction of coal is equal to 10% of the total. That is wind will increase by 10% of the total electricity generated and coal will decrease by the same amount. What will that average cost per kilowatt hour be if all costs remain the same and the governor's plan is enacted? What are the positive and negative implications of this change? Would you support the governor, why or why not?
 - c. Go to the web site again

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http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html At the very bottom after Appendix C, you find “Electric Power Data by Month and State, 2001 to Present.” The first Excel Workbook lists “Net Generation by State by Type of Producer by Energy Source.” Individual US states produce some electricity in the state and can import electricity produced elsewhere. Many states also export electricity. For the most recent year (years are in tabs at the bottom of the workbook) and most recent month copy the section “Total Electric Power Industry.” Paste it in a new worksheet. Then delete any rows with zero’s or any subtotals. For most states there are several lines for each type of electricity generation. For example Illinois has the following:

2012	7	IL	Total Electric Power Industry	Petroleum	5,942
2012	7	IL	Total Electric Power Industry	Coal	8,103,715
2012	7	IL	Total Electric Power Industry	Natural Gas	2,407,647
2012	7	IL	Total Electric Power Industry	Solar Thermal and Photovoltaic	5,885
2012	7	IL	Total Electric Power Industry	Other Biomass	56,802
2012	7	IL	Total Electric Power Industry	Hydroelectric Conventional	6,384
2012	7	IL	Total Electric Power Industry	Nuclear	8,174,880
2012	7	IL	Total Electric Power Industry	Other Gases	10,708
2012	7	IL	Total Electric Power Industry	Wind	303,499

We chose Illinois because they produce power from a wide variety of sources. Many states do not have nearly as many types of electricity generation types. Prepare a report and discuss the significance.

- Many utilities like the one in this example offer a rebate if you turn in your old refrigerator. Why would they do that? You can try to brainstorm reasons and write up your findings.

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A Model for Running an Undergraduate Business-Focused Case Competition

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Abstract

A case competition complements the curricular objectives of various programs in this era of mission-driven business school accreditation. We provide a model for conducting a case competition at a business school in a manner that integrates curriculum objectives with learning outcomes, and without imposing greatly on time constraints of faculty. Based on our experiences for running this competition for three years at a small, mid-western university, we recommend a four-phase sequential description of the process: planning, execution, assessment, and feedback. Even though the framework presented here is performed as an extra-curricular activity, with minor modifications, it can be integrated into an ongoing standard undergraduate-level course.

Introduction

There has been considerable attention given to pedagogical studies that lead to enhanced student learning in business courses; however, these studies have predominantly focused on methods and tools to be used in the classroom (see Rassuli and Manzer, 2005, Lam, 2007, Santos, Vega, and Barkoulas, 2007). While it is essential to develop basic skills in the classroom, faculty should also consider opportunities that are available outside the classroom. In this paper, we provide a framework for a case competition structure that intentionally connects faculty and students in a way that not only reinforces in-class learning but also assists students in developing skills essential for their future careers in business. We present a structure for conducting a business case competition for undergraduates at a business school that does not impose greatly on the many academic activities faculty and students choose to participate in during a given term. The ideal case competition integrates the undergraduate course curriculum with real life experiences, while achieving many positive outcomes.

In reviewing materials available in the public domain on business case competitions in the US, it is evident that they have typically been a graduate school phenomenon, pitting MBA students against each other for prize money and/or recognition. For example, several highly ranked graduate schools such as Boston University, George Washington University, Columbia, NYU, Wake Forest, and Wharton participate in intercollegiate case competitions. The competitions are typically designed to encourage contestants to provide workable solutions to key business problems, to deal with social enterprise or environmental issues, or to develop a completely new product or service.

There are also many national and regional competitions organized by institutions such as Global Science Entrepreneurship, the Center for Entrepreneurship, the Collegiate Entrepreneur Organization, and the Neely Entrepreneurship Center. These competitions provide students the opportunity to pitch their business concepts to a panel of judges that are often veteran entrepreneurs themselves.

At the undergraduate level, national and international competitions like the IMA Case Competition (Richtermeyer, 2007), The Edward Jones Challenge (Umble, Umble, and Artz, 2008) and The Travelers' Case Competition offer unique experiences to undergraduate business students. These competitions frequently feature the elevator pitch concept, where contestants must summarize the most essential aspects of a business within the time that it would take to ride up an elevator. Student participants, often from college entrepreneurship clubs, compete for cash prizes and get an opportunity to have their business ideas reviewed by potential future employers.

The case competition described here uniquely provides an opportunity for undergraduate students to apply concepts they have recently seen in their coursework to 'real world' business problems. While the competitions introduced above are mostly a forum to develop

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and present immediately usable solutions for specifically identified problems, we make more of a deliberate attempt to complement or harness traditional class pedagogy. Thus, our objective is similar to that enacted by the Northeastern University College of Business Internal Business Case Competition (IBCC); that is, it “provides students the opportunity to hone their analytical, critical thinking and presentation skills by taking their course work from the classroom to a competitive arena” (Northeastern University, 2011). Furthermore, the case competition introduced here does provide undergraduate students the needed preparation to participate in the national, regional, and graduate case competitions described above.

Motivations and Learning Outcomes

There are several motivations for using extracurricular case competitions. A key motivation is increased interaction between faculty and students. In most typical undergraduate academic environments, faculty/student interaction occurs primarily in the classroom or during office hours, as relates to a particular class or perhaps with respect to advising.

Frankel and Swanson (2002) tested the impact of faculty-student interaction outside the classroom and found that if a professor had positive student encounters, then he/she was more likely to show greater interest in student learning by making additional effort to “encourage, strengthen, and praise students to support appropriate behaviors” (p. 91). In addition to greater faculty interest, students benefit from team-based competitions in several ways. Umble, Umble and Artz (2008) noted that team-based competitions achieve six student outcomes through, “(1) providing an active learning experience, (2) reinforcing important class concepts, (3) helping students relate course concepts to the real world, (4) enhancing critical thinking skills, (5) providing an opportunity to work in a team, and (6) enhancing the overall learning experience (p.1).”

Another motivation of case competitions relates to accreditation. The Association to Advance Collegiate Schools of Business (AACSB) accreditation standard number 14 requires that students demonstrate both general and management-specific goals. General goals include “such learning areas as communication abilities, problem-solving abilities, ethical reasoning skills, and language abilities. . .[while management-specific goals] relate to expectations for learning accomplishment in areas that directly relate to management tasks and form the business portion of degree requirements.” (p. 61). Furthermore, AACSB requires that for each goal adopted by a business school, the school must have multiple assessment measures that demonstrate achievement of those goals. Case competitions may be valuable to institutions that struggle with assessing specific goals since such competitions enhance the overall learning experience.

A final motivation for case competitions relates to career placement for students. Smith and Hanlon (2009) noted that “perhaps the most important benefit students earn by participating [in case competitions] is the resume line. Students report that this is the most discussed item in interviews for internships and full-time positions, and is a great opportunity to distinguish themselves from other job applicants” (p. 1). Employers value the outcomes achieved through case competitions. A 2010 survey conducted by the National Association of Colleges and Employers (NACE) concluded that “companies are seeking evidence of communication and writing skills, analytical ability and teamwork” (Korkki, 2010). When examining what skills are needed for success in business, Coplin (2002) reported that employers rank teamwork skills as one of the most important skills learned in college.

There is little doubt that the extracurricular case competition adds value to a business program; however, resources are limited and creating the competition structure can be time

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consuming. In choosing to participate in a case competition, faculty must weigh the imposing needs of developing a case problem, soliciting student groups interested in competing, committing office time to answering questions, listening to and evaluating student presentations, and reviewing submitted reports against their standard obligations of scholarship, teaching, and service.

To minimize faculty time commitments associated with a case competition, we create a template for running a case competition. The competition process is separated into four task-based phases (planning, execution, assessment and feedback) that need to be implemented in progression. The rest of the paper will present a discussion of our template for each phase, with examples from our own experiences shown as necessary.

The Planning Phase

With good planning, the case competition will likely be a positive experience for both faculty and student participants. The planning phase includes scheduling, advertising and student recruitment, and case selection. Each process is discussed in this section of the paper.

A. Timing and Scheduling

Limiting the competition to a single weekend helps to mitigate the burden of time commitment. The most optimal timing for the case competition may be early in the spring semester, perhaps after the second full week of classes. The earlier part of a semester is convenient for students as they have just settled into their new classes and have a relatively low academic work load; similarly, faculty have just rolled out their class work, attended to all advisee issues relating to course changes, and should not yet be overly committed. We prefer holding the competition in the spring semester, instead of in the fall semester, because we have time for attending to competition details during the winter break. We also discovered that we can promote the competition late in the fall semester, and not incur a large gap in time between when applications are solicited (in December) and when the competition commences (in January).

To condense the event into a narrow time frame, a single weekend, using Friday (or Saturday) as a work day and Saturday (or Sunday) as a reporting day, works well. An example of a model weekend schedule is included in Appendix 1. Before advertising and student recruitment occur, the schedule should be set so that all potential student participants can plan accordingly.

(Refer Appendix 1)

B. Advertising and Student Recruitment

Student participation is critical, especially when the competition is financially supported through a grant or benefactor. To encourage student participation, the competition should be announced in related courses and through electronic platforms like student publications and appropriate student e-mail lists. Students should be asked to register as a team on official application forms. As for group size, we recommend 3-4 individuals for both student groups and for the participating faculty panel. Faculty teams should anticipate questions during this time period since many students will want clarification of processes. Note that if a college has a robust, active student population, the faculty team may consider limiting the number of teams that participate before beginning its recruitment process.

C. Case Selection and/or Creation

The choice and preparation of the case study to be used in the competition is one of the biggest planning tasks for the faculty team. The ideal case should require students to grapple

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with many gray issues, much like they would as business consultants. Pedagogically, the case should have a limited number of “correct answers”, and provide opportunities for students to think both critically and creatively, drawing upon their myriad of business courses in providing recommendations. The ideal case should have the potential for many non-traditional solutions which could potentially be judged favorably, if appropriately supported. In other words, the case needs to be “messy” as defined by Carrithers, Ling and Bean (2008). Given the desired nature of the case, a faculty team may opt to purchase a case, work with a local business to create a case or simply write a case that will be used in the competition.

The easiest approach is to purchase a case from an existing vendor and use it as is. The primary advantage of this approach is the time saved by not writing a case from scratch. However, a disadvantage of this option is that information, whether free or at a cost, may be available online. Availability of online information should be thoroughly researched by the faculty team and, in turn, shared with all student competitors at the onset of the competition to ensure equal information for all student teams.

Another approach is to solicit case studies by asking business managers (or guest speakers) from the local community to provide an appropriate case based on their internal work experiences. Yin (1994) stated that case studies based on contemporary real-life issues are particularly appropriate for, and attractive to, students. Other advantages to this approach are: (1) students may develop a good understanding of the subject company (if its disclosure is allowed), (2) local case studies enhance the relationship between the University and the local business community, and (3) the local business may send some of its people to participate on the panel of judges. The disadvantage of this approach is the possibility that the case will need to be adapted for the needs of the competition, which will require faculty time.

The final approach, which is also the most time consuming, is to create an original case for the competition. To date, we have been through three annual cycles of our weekend case competition. In our first year, we created a case based on a Midwestern company that was considering two buildings for potential expansion, one of which would cost more to the firm but would also serve as a cornerstone for a downtown revitalization effort. In our second year, we adapted a case from the Harvard Business Review, whereby a private label manufacturer had to decide whether or not to expand production facilities to meet significantly increased demand from a single customer. In our third year, we adapted a case from Darden Business Publishing that focused on whether or not Boeing should go ahead with the development and production of a new mid-sized fleet of airplanes, especially in the context of keeping up with its primary competitor Airbus.

Because the case was original in year 1 and purchased in both years 2 and 3, we noted a large difference in average planning time. In year 1, the average planning time per faculty member was 15.7 hours, while in years 2 and 3, planning averaged 5.0 and 6.2 hours per faculty member, respectively. There is little doubt that the choice of approach in case selection was a primary factor in explaining the time difference after year 1.

III. The Execution Phase

The successful execution of a case competition depends heavily on the preceding planning phase. At the commencement of the competition, the faculty team should meet all contestants and share the following information with the student teams:

1. Time schedule: The faculty team should review the timing of main events, and answer any questions relating to competition structure.

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2. Guidelines and expectations: Each student group should be given expectations concerning both oral presentations and written reports. Rubrics for the oral presentation and written reports should be shared with students at this time.
3. Random draw for presentation order: Each group draws their presentation time at random out of a hat.
4. Case guidance: The faculty should discuss the nature of the case and may choose to give students some specific direction on which tasks are most important to address. The faculty team may also announce limited office hours during the competition, for which students may visit if they have further questions.

Note that in our first year, we gave no general guidance on the case study in the initial meeting. However, in our second and third years, more guidance was given and results were slightly higher in quality and much lower in variability relative to the first year. Because we used a published case in both the second and third year, there were teaching notes online as well as a couple of related web sources, all of which were shared in the initial meeting with students. Thus, the competition became more focused on presentation skills and writing skills, rather than on problem-solving skills (as in the first year).

When working on the case, students were not restricted to a certain area, or even required to work inside of the business school. Also, we felt the easiest way to communicate any key project updates or clarifications, once the competition had started, was via Blackboard®, to which all students had an operating account. Blackboard® was also utilized for each group's final submissions, which included their written reports, presentation slides, and any spreadsheets and appendices that supported their conclusions. This electronic efficiency facilitated a smooth progression for assessment and review.

All student groups were required to submit their written report, PowerPoint presentation, and spreadsheet by a set time. Presentations began 20 minutes after this deadline. A technology support person was in the presentation room and loaded each group's submitted presentation slides before that group entered the room. In addition, fellow faculty members and administrators were invited to watch some or all of the presentations. Student teams were not allowed to watch other presentations until they had already presented.

IV. The Assessment Phase

Assessment occurs in two forms once the competition has begun. First, the products created by each student team must be assessed so that "winners" may be determined. Second, the structure of the competition itself must be assessed so that improvements in processes can be made in future years. In this section, we will discuss both forms of assessment.

A. Student Team Assessment

It is difficult to measure student performance consistently. However, rubrics for both the oral presentation and written report may assist in the process. Griffin (2009) describes rubrics as follows. "[They are] the finest description of what we think is important for our students right now, in the service of their learning." (p. 13). The rubrics used in the past three years can be found in Appendices 2A and 2B. The oral presentation rubric is a modification of a rubric created by the University of Dayton (see footnote on rubric). It is entirely likely that these rubrics may need modification as the case or the competition changes over time.

Refer Appendices 2A and 2B

The adapted rubrics were shared with students at the beginning of the competition. At this time, students were informed of how the rubric scores would be weighted. For the most

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recent competition, we chose weights of 50% for the oral presentation and 50% for the written report. After each portion of the competition was completed, the faculty team computed an average rubric score for each team. From the two rubrics used, the group rankings were then determined. The top six teams were recognized at an awards ceremony, with the top three teams winning various cash prizes.

B. Assessment of Competition Structure

In addition to assessing student performance, it is important to review the effectiveness of the competition process, seeking opportunities for improvement. In the three years of competition, we identified several action steps that improved the competition structure.

First, we changed our approach as to the level of guidance provided to students about the case study. Initially, the case study was sent to students and little guidance was provided, giving students great flexibility in setting assumptions. Although the lack of guidance may be viewed as a positive, from an evaluation standpoint, it was very difficult to figure out which groups had made the most optimal decision and why, especially when referring directly to their supporting spreadsheets. Moreover, based on the content of both their reports and presentations, we learned the value of stressing the need for contestants to focus on their thought processes and problem solving approaches, rather than simply whether they got the “right answer” in the end. These observations helped us in formulating expectations and guidelines that were communicated succinctly in subsequent competitions.

Second, we discovered that sharing key information concerning the oral and written reports helped students to better understand expectations. We created and shared a document with students called Points of Emphasis (see Appendix 3) that effectively summarized all the general feedback we gave students after the prior year’s competition and provided guidance to students concerning presentation management and written report structure. While such guidance was beneficial for students, caution was taken to avoid being overly prescriptive to the point that team creativity may be stifled.

Refer Appendix 3

Third, we extended the time given for each student presentation and increased the allowed length of their written report. Because there were so many groups (13 in total) participating in iteration 1, the presentation times were restricted to 8-10 minutes and the written report’s maximum length was three double-spaced pages. We discovered that the time allowances and report restrictions stifled the effectiveness of student performance. When we extended presentation times to 15 minutes and allowed five single-spaced pages on the written reports, we observed, on average, more-relaxed, higher-quality presentations and reports that contained stronger analysis, relative to iteration 1.

Finally, we have struggled with the balance between encouraging students to participate vs. suggesting (or requiring) certain prerequisites, which will effectively limit participation. In our first two years of competition, advertised prerequisite for our competition has been a single semester of an introductory corporate finance class (for which all business students must take, usually during their junior year). However, it has become apparent that the selected cases gave students with upper-level business courses students a significant advantage over students who had not. We also discovered that since students were allowed to self-select their own groups, this potential gap in knowledge from prerequisite classes could be quite large. Although we have discussed imposing constraints on group formation, we ultimately decided against it, thinking that such constraints would serve as a significant disincentive for students to participate. In general, we have observed that the broader the

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background of contestants in a team in terms of business disciplines, the richer the final output of that team.

From the faculty's point of view, assessment of the case competition requires a significant time commitment. Finding ways to minimize this commitment is achieved through assessment of the competition structure. We estimate the time spent on assessment was 6.7 hours per faculty member in year 1, but only 4.7 hours in years 2 and 5.0 hours in year 3. This reduction in faculty time was achieved through offering greater guidance to students at the outset of the competition, thus eliminating some of the deviation in output and analyses submitted by student teams. Furthermore, faculty who are judging for the 2nd or 3rd times can rely on their past experiences to expedite the assessment process. For a complete breakdown of faculty time spent per phase per iteration, see Appendix 5.

Refer Appendix 4 and 5

V. The Feedback Phase

The feedback phase consists of feedback from the faculty team to student competitors as well as feedback from student teams to participating faculty members. In this section, we will discuss each type of feedback flow in turn, and also mention some limitations of our competition structure.

A. Feedback from Faculty to Students

In all three years, the competition concluded with an awards ceremony. Having a formal ceremony elevated the exercise and added prominence both at the institution and potentially with the local business community. However, before the winners were announced, the faculty team provided general overall feedback to all participants. Such feedback included the primary strengths and weaknesses observed from both the oral presentations and written report, and focused on elements that separated the winning teams from those who did not place. We also provided information on the specific nature of the case just completed. Since there were multiple solutions possible, we noted that decisions made by the groups needed to be well supported. We also mentioned that the winning groups achieved success based largely on how they communicated their results, and not just based on what their results actually were. At the conclusion of the faculty comments, participating groups were encouraged to visit with faculty members to obtain more detailed feedback, which many groups did.

B. Feedback from Students to Faculty

Students also played a role in providing feedback about the case competition, as their responses contributed to the ongoing assessment of process. In general, student competitors enjoyed the competition. In all three years, faculty team members heard from students who requested more competitions since they found the event to be a valuable opportunity to enhance their business skills. After the initial competition, we administered an exit survey, but it focused more on the competition's structure and guidelines along with the specific aspects of the given case. For the 2nd and 3rd years of our competition, we administered an expanded exit survey to our students, focusing on any improvement in skills used during the competition that would supplement the more typical skills taught in the classroom. This survey can be found in Appendix 4, and representative results are discussed below.

When asked about their experience, the most frequently observed response revolved around the team building aspects of the competition. Many students commented that working under time pressure was a valuable experience, especially in the context of preparing them for their future careers as potential business consultants. Others noted their enjoyment of the earlier

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stages of the project, where group members had to brainstorm for different ideas, discuss each idea in turn, and ultimately come to a consensus. By-products of this process, mentioned by several students, were conflict resolution and task allocation. Still, other groups admitted to learning about professionalism, both when speaking in a more formal setting and when writing a proper business memo, where clarity, succinctness, and structure were highly emphasized.

When asked about case content, student responses focused mostly on broad skills needed to be successful on the project, such as demonstrating and enhancing their spreadsheet skills or incorporating qualitative and contextual factors into their decisions. In addition, some students commented about the research skills that were required for success.

C. Limitations of our Competition Structure

There are three primary limitations with respect to our model structure. First, we did not provide feedback that is individually tailored to groups (or to the individuals within those groups). The large number of groups and the compressed timeframe for which the competition cycle runs made it challenging for faculty to find additional time for group feedback, although we acknowledge that this would be quite beneficial. Second, there is a potential 'free rider' problem; that is, some students may do well just from being in a strong group, and subsequently get both prize money and a resume builder that does not necessarily reflect their own individual effort and accomplishment. Third, partly because we suggested a course prerequisite that is not typically taken until one's junior year, there are very few students who can participate in our competition more than twice. Thus, it is difficult for us to measure the extent to which their business skills improve from their experiences from prior competitions.

VI. Conclusion

In its career advice area, Monster.com reports 100 possible interview questions, many of which relate to team work, time management, and problem solving. It is clear from these questions that today's employers are seeking graduates who have more than just a rudimentary knowledge of core academic concepts. The ability to deal with ever-changing business situations, and find or provide meaningful solutions is viewed quite favorably among employers, especially if the prospective hire has satisfactorily completed all the related, required coursework.

Case competitions provide an opportunity to make business education meaningful to business students, especially if the competition is well organized, while providing students an opportunity to prepare for upcoming career challenges. For example, competitions enable students to deal with the challenge of delivering results under pressure, given an enigmatic real-world business problem.

In this paper, we have provided a discourse of recommendations that aid running a short undergraduate business case competition that can seamlessly fit into both student and faculty schedules, while also achieving desirable business learning outcomes. For the majority of students and faculty who participate, the experience is not just rewarding from an intellectual perspective, but also an opportunity to develop and nurture common interests with one's peers.

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Appendix 1 : Outline of Schedule for Competition

Friday

10:00 am - 10:15 am – Copies of the competition guidelines and schedule will be distributed to each group of students. This will be followed by a brief introductory presentation that reviews both the schedule and guidelines. A random draw for Saturday's presentation times will be conducted. Finally, an announcement will be made as to which faculty members will be responsible for answering certain questions. LOCATION: XXX

10:15 am - 12:00 pm – Each team meets alone (at the location of their choosing) to read over the project, and to develop their 'plan of attack.' Ideally this time could also be used to start doing some research; this could consist of a review of both Principles of Finance I or Theory of Interest (in Actuarial Science major) textbooks (where applicable) and/or an Internet search (relating to tax/accounting aspects of the problem). No faculty panel members will be present during this time.

12:00 pm - 12:30 pm – Lunch is provided to all teams. Faculty members may be present for lunch, but will refrain from answering project-related questions until after lunch. LOCATION: XXXX

Saturday

10:00 am - 10:15 am – Details about both the written report and oral presentation will be announced. In addition, there will be an overview of the Saturday schedule, including the stipulation that all project-related work must be completed and submitted by 2:00p. It is now that we can be available to answer any questions that teams feel comfortable asking in front of all the other teams. LOCATION: XXXX

10:15 am - 12:00 pm – Ideally, this is the time during which teams will prepare their written report. This is to be no more than three pages (plus any supporting tables and graphs), double-spaced, and is to be written in the form of a memorandum to corporate management. Faculty members will be available (again in their offices) to answer questions about the format/style of either the written report or the presentation slides.

12:00 pm - 12:30 pm – Lunch is provided to all teams. Faculty members may be present for lunch, but will refrain from answering project-related questions until after lunch. LOCATION: XXXX

12:30 pm - 2:00 pm – Each team returns to their separate locations; this is when the presentation slides are developed (some team members may wish to use this time to also finish the written report if necessary). Although 90 minutes does not seem like a lot of time to prepare slides, recall that this presentation is to be short and succinct. Time management (under pressure) is key. If a team has adequately completed the project by lunch, there should be ample time to summarize their findings and recommendations. Note that none of the faculty panel members will be present during this time.

All written reports and slide presentations are due at 2:00 pm, regardless of when a team is scheduled to present. Submission of both the written report and slide presentation is to be done electronically at/before 2:00 pm (so teams will not need to print their submission).

2:20 pm - 5:00 pm – In succession, all teams will present their findings and recommendations. Each team will have 8 minutes to complete their talk, and depending on timing, we'll have an additional 1-2 minutes to ask a question or two. The talks will be scheduled exactly 10 minutes apart, so that we can finish by 5:00 pm. Staying on schedule is paramount (and in extreme circumstances, talks may be cut short if continuing on for too

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long). Presentations are open to the public, but other teams may only sit in after they have given their own presentation. In the event that the room becomes too crowded, teams that have been around the longest will be asked to leave. XXXX

5:00 pm - 5:30 pm – After all students have been dismissed, the panel of faculty judges will meet to rank the group presentations. Ideally, individual preliminary rankings/ratings will be already done, so this time will be used to simply pool results and discuss some of the stronger team presentations in more detail.

Sunday

The faculty judges will individually review the written reports.

Monday

The faculty judges will meet briefly on Monday (perhaps during the lunch hour) to compile individual ratings/rankings for the written reports. Finally, these results can be combined with those for the oral presentations to form our overall winners.

5:00 pm - 5:30 pm - The top 5 teams overall will be recognized, based on a 50/50 split between points assigned to the written report and oral presentation. However, only the top 3 teams will receive cash awards (4th and 5th place get honorable mention). Dean (or other selected personality) will announce all the winners at this official ceremony. LOCATION: XXXX

5:30 pm - 6:00 pm – A brief reception (with drinks and appetizers) to follow the awards ceremony. LOCATION: XXXX

Appendix 2A: Written Rubric⁴

	Level 1	Level 2	Level 3	Level 4
Content Grade _____	Poor; paper does not convey student understanding of all subtleties in the case.	Marginal; paper conveys some understanding of case, but several issues are not addressed adequately	Good; paper conveys an adequate understanding of case, but could be stronger.	Excellent; paper conveys case understanding in an interesting and complete way.
Recommendation Grade _____	Recommendation is not clear or is not supported	Recommendation is clear but support is not well developed.	Recommendation is clear and supported	Recommendation is clear and completely supported.
Organization Grade _____	Writing is disorganized with poor flow	Writing is somewhat organized but contains some weak areas.	Writing is organized	Writing is organized, interesting, and easy to read
Mechanics (structure, grammar & spelling) Grade _____	Careless; paper contains many structural, grammatical, or spelling errors	Marginal; paper contains 3-5 structural, grammatical or spelling errors.	Good; paper contains 1-2 structural, grammatical or spelling errors.	Excellent; paper contains no structural, grammatical or spelling errors

⁴ Rubric modified from one found at: Jill M. Bale and Donna Dudney, "Assessing and Developing Writing Skills in Finance," Regional Business Review, Summer 2002.

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Appendix 2B: Oral Presentation Rubric⁵

	Level 1	Level 2	Level 3	Level 4
Organization Grade _____	Audience cannot understand presentation because there is no sequence of information.	Audience has difficulty following presentation because student jumps around; loses “big picture” results.	Students present information in logical sequence which audience can follow.	Students present information in logical, interesting or innovative sequence which audience can easily follow.
Mechanics (Including presentation aids) Grade _____	Student's presentation had four or more spelling errors and/or grammatical errors.	Presentation had three misspellings and/or grammatical errors.	Presentation has no more than two misspellings and/or grammatical errors.	Presentation has no misspellings or grammatical errors.
Time Management Grade _____	Poor time allocation; group was unable to cover several key points in time allotment.	Marginal time allocation – group did not cover one or two key points in time allotment.	Good time allocation – group covered all main points but some addressed hastily.	Excellent time allocation – covered all main points effectively.
Delivery Grade _____	Students are difficult to hear, use excessive filler, and/or use non-verbal distractions.	Students use excessive filler and/or non-verbal distractions.	Students' voices are clear. Very few fillers/ non-verbal distractions are present.	Students use a clear voice with no fillers. No non-verbal distractions occur.
Content Knowledge Grade _____	Students do not communicate a complete understanding of the case.	Students communicate some understanding, but miss several aspects of the case.	Students communicate an understanding of the case with explanations.	Students demonstrate full knowledge of case with well-supported explanations.

⁵ Rubric modified from one found at:

<http://assessment.udayton.edu/howto%20tips/Rubrics/presentation%20rubric%20-%20teach-nology.htm>

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Appendix 3: Points of Emphasis Information Shared With Students at Initial Meeting

Written Report:

- 1) You only have 3 pages to get your point across, so don't spend much time restating the problem; assume the judges already have familiarity.
- 2) Let us know your recommendation right away, preferably in the opening paragraph. You could even have a 'thesis statement' at the conclusion of this paragraph that summarizes your rationale (that will be developed).
- 3) The remainder of your paper should address how your overall conclusion (already mentioned) was formed; that is, you should provide a high-level overview of the main points from your analysis.
- 4) Remember that you are a professional (e.g. a consultant or mid-level manager) so that you should use a professional tone in your writing. That is, you should avoid flower, informal language and clichés.
- 5) Any information that is only tangential to your main train of thought should be relegated to appendices or attachments, rather than in your core report.

Oral Presentation:

- 1) Rehearse beforehand, and focus on sounding and appearing professional; that said, business casual attire should be sufficient.
- 2) Although we do not require all group members to speak equally (or at all), it might work better to have everyone participate at least in some capacity.
- 3) Face your audience, know the content on your slides without having to always look directly at the slides, and sound confident in what you say.
- 4) Don't fill each slide with too much information; each slide should contain one or two main ideas. You can fill in the gaps with extra spoken words.
- 5) The presentation should be similarly structured to the report; state your conclusion early on, and spend the majority of your time offering support.

Appendix 4: Exit Survey given to Students at Conclusion of Competition

- 1) Comment on the structure of the competition. Specifically, did you feel that the group size was about right? Also, do you feel that the 60/40 split between the report (+ analysis) and the presentation is about right? If not, what would you change?
- 2) Comment on the timing of the competition. Was it scheduled during the appropriate time of the semester/year? Was the length of time your group had to spend to complete the given tasks about right? Too much? Too little?
- 3) Important: What, if anything, did you learn about group work, business writing, and public speaking?
- 4) Important: What, if anything, did you learn about corporate finance and time value of money, specifically with respect to capital budgeting analysis or tax/accounting considerations?
- 5) Was the case itself clear? Was enough information provided for you to adequately address the recommended tasks? Would you recommend this case, or a version of it, be used again?

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Appendix 5: Faculty Time Spent in Each Phase by Year

Phase	Average time per faculty member		
	2010	2011	2012
Planning	15.7 hours	5.0 hours	6.2 hours
Execution	12.3 hours	12.3 hours	10.0 hours
Assessment	6.7 hours	4.7 hours	5.0 hours
Feedback	3.0 hours	2.3 hours	2.2 hours
			23.4 hours
TOTAL	37.7 hours	24.3 hours	

Additional notes:

- Three faculty members participated in each year
- 35.4% reduction in time spent in 2011 v.2010, 3.7% reduction 2012 v.2011
- Planning differences due to choices made in case selection (published in 2011 and 2012 vs. written by faculty team in 2010)
- Assessment differences due to greater initial guidance provided to students.

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